

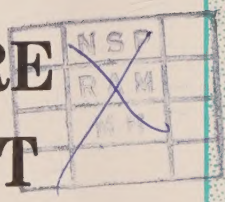
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**THE REPUBLIC
OF UGANDA**



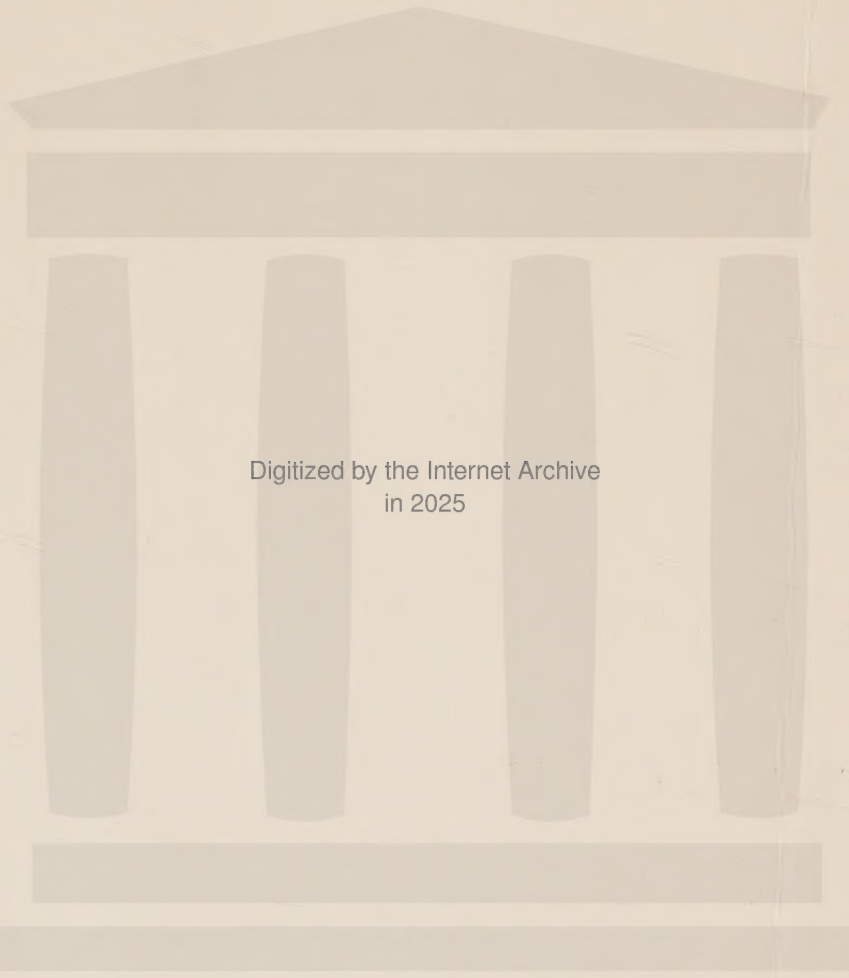
THE REPUBLIC OF UGANDA

**Annual Report
of the
AGRICULTURE
DEPARTMENT**



*Too old & all
faintly interest
covered & rewrote*





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**Annual Report
of the**

**AGRICULTURE
DEPARTMENT**

*For the year ended
31st December, 1964*

CONTENTS

FOREWORD by the Honourable A. A. Nekyon, M.P., Minister of
Agriculture, Forestry and Co-operatives

	<i>Paragraphs</i>
I. INTRODUCTION	1- 23
II. WEATHER	24
III. FOOD CROPS AND FOOD SUPPLIES	25
IV. ECONOMIC CROPS:	
(a) Cotton	26- 36
(b) Coffee:	
(i) Bugisu Arabica	37- 41
(ii) Coffee other than Bugisu Arabica	42- 44
(c) Tobacco:	
(i) Flue-cured	45- 48
(ii) Fire-cured	49- 53
(d) Tea	54- 56
(e) Sugar	57- 59
(f) Cocoa	60- 61
(g) Maize	62- 63
(h) Minor Crops:	
Vanilla }	64- 66
Chillies }	
Papain }	
Sisal }	
(i) Oil Seeds and Products:	
Groundnuts }	67- 70
Castor Oil Seed }	
Sunflower }	
Sesame }	
V. AGRICULTURAL DEVELOPMENT AND EXTENSION WORK:	
(a) Soil Conservation	71- 73
(b) Progressive Farmers	74- 77
(c) Animal Husbandry and Pasture Work	78- 81

CONTENTS—continued

	<i>Paragraphs</i>
(d) Irrigation and Swamp Reclamation:	
(i) Kigezi	82- 85
(ii) Mubuku/Sebwe Irrigation Scheme ..	86- 91
(iii) Prospecting Team	92
(e) Settlement Schemes	93- 99
(f) Ox-cultivation	100-104
 VI. AGRICULTURAL EDUCATION:	
(a) Agricultural Colleges	105-113
(b) District Farm Institutes	114-115
(c) Farm Schools	116
 VII. MECHANICAL CULTIVATION:	
(a) General	117
(b) Group Farms	118-120
(c) Hire Services	121-122
 VIII. INVESTIGATIONS:	
(a) General:	
(i) Serere Farm	123-125
(ii) Kawanda Farm	126-132
(b) Soil and Land Use Surveys:	
(i) Group Farms	133
(ii) Lake Kijanibarora and Mukora Flats Survey ..	134
(iii) Estate Crops	135-136
(c) Soil and Plant Chemistry—General	137-140
(d) Herbicide Research	141
(e) Chemical Analysis	142
(f) Crop Protection Machinery	143
(i) Machinery Activities.	
(ii) Field Trials.	
(iii) Other Activities.	
(g) General Entomology	144-147
(h) Crop Investigations and Research—Annual Crops:	
(i) Maize and other Cereals	148-155
(ii) Beans	156-158
(iii) Groundnuts	159-160
(iv) Cotton	161-164

CONTENTS—continued

	<i>Paragraph</i>
(i) Perennial Crops:	
(i) Coffee (Arabica)	165
Pathology	166-168
Entomology	169-172
Agronomy	173
(ii) Coffee (Robusta)	174
Pathology	175
Entomology	176
Agronomy	177-178
Physiology	179
(iii) Cocoa:	
Breeding	180
Pathology	181
Entomology	182
Processing	183
Extension Services	184
Pest Control	185
Marketing	186
(j) Pasture Agronomy	187-196
IX. STAFF	197
X. ACKNOWLEDGMENTS	198-200
XI. APPENDICES:	
I — Uganda Rainfall.	
II (a)-(d) — Cotton Production.	
III (a)-(e) — Crop Production.	
IV — Crop Production—Quantities Marketed, etc.	
V (a) — Overseas Exports of Agricultural Produce.	
V (b) — Exports of Agricultural Produce to Kenya and Tanganyika.	
VI — Plantation Crop Production.	
VII — Prices Paid to Farmers.	
VIII — Population and Availability of Land.	
IX — Principal Agricultural Legislation.	
X — Disposition of Staff.	

FOREWORD

I feel very honoured and pleased to write this foreword to the 1964 Annual Report of the Department of Agriculture.

The dominance of agriculture in the nation's economic growth has remained unchallenged by any other sector for quite a long time. It is therefore proper that the Government gave unreserved support to this sector both morally and materially in order to achieve the Government's pledge to eradicate, amongst other evils, poverty. In pursuance of this goal, emphasis was rightly laid on the expansion of mechanical and ox-cultivation, subsidisation of essential agricultural equipment and implements, sound extension service, extensive investigation, and producing suitably trained personnel to man the agricultural services.

I am pleased to note that success has attended these efforts. During the year, seventeen new group farms were opened and they will, no doubt, prove of inestimable value in demonstrating good farming to our Uganda farmers. Effort is actively being made to purchase more tractors with the ultimate aim to revolutionise agriculture in the near future. It is gratifying to note that farmers continued to show keen interest in ox-equipment and tool bars which, no doubt, can be used as stepping stones, during this transitional stage, to full mechanisation. Although the tool bars were not available in sufficient numbers, it remains my sincere hope that the farmers will continue to show this zeal as steps are being taken to ensure a timely and sufficient supply.

An expansion in the growing of tea in the Western Region made an encouraging start, for which I am most grateful. It is Government's intention to explore all possibilities to expand tea production in its avowed endeavour to eradicate poverty in that area.

This Report contains some interesting results from the Research Stations of the Department, and will no doubt enlighten the readers of the vital role this Division plays in seeking solutions to agricultural problems of a development nature. It is upon these findings that extension advice is based.

In conclusion I wish to convey my heartfelt gratitude to the Commissioner for Agriculture and his staff, whose dedication has contributed materially to the country's much-desired development. I would also like to thank the farmers whose co-operation was vital in the progress achieved, and I would also like to thank others whose assistance and co-operation enabled successes to be scored in various fields.

A. A. NEKYON,
Minister of Agriculture,
Forestry and Co-operatives.

UGANDA GOVERNMENT

DEPARTMENT OF AGRICULTURE

Annual Report

For the Year ended 31st December, 1964

I. INTRODUCTION

(a) Policy

THE OBJECTIVES of the Department of Agriculture in 1964 were similar to those of previous years; they were:—

(i) to ensure sufficiency of food supplies in the country and to encourage the Uganda farmer, wherever possible, to grow such food as can be grown locally;

(ii) to conserve the soil, water and other natural resources;

(iii) to enhance production as well as productivity by means of the available mechanical, scientific and other resources in order that the farmer can derive as much return as possible from his crops and livestock, and thereby enjoy a higher standard of living;

(iv) to maintain and improve on the natural fertility of the land by the intelligent integration of superior farm animals in the farming system.

(b) General Review

2. The year witnessed the very rapid expansion of mechanical cultivation; 250 new tractors were bought by Government, which brought the total force of tractors to 394. These tractors were engaged on hire services to farmers and on the new Group Farm Scheme aimed at boosting production and lifting the standard of living of its members. The activities of the Department as mentioned in my last report were directed towards the progressive farmers as well as the masses, bearing in mind the particular interest of the co-operative societies. The District Farm Institutes were engaged on offering to farmers a variety of courses on agriculture and/or allied subjects.

3. Agriculture remained by far the largest foreign exchange earner for the country and Government gave the industry every possible encouragement and assistance. The staff necessary to run the rapidly expanding agricultural services was recruited and some 40 expatriate Assistant Agricultural Officers came to Uganda.

4. The rainfall in 1964 returned on the whole to a more predictable pattern with less extreme weather conditions than had been experienced in the previous three years. Both cash and food crops experienced reasonable establishment and growth conditions in most areas.

5. To equip the field staff for increased and co-ordinated extension activities, various courses in extension methods were conducted at both Arapai and Bukalasa Agricultural Colleges. Refresher courses for the field staff were also carried out at various centres.

6. With the departures of various expatriates, there was a disruption of staff continuity in various districts. Many of the vacancies were filled by Ugandan officers and towards the end of the year the situation was beginning to settle down.

7. There was increased interest in the Young Farmers of Uganda Societies' movement and many new societies were formed. The young farmers were busy on their various animal and crop projects.

8. Loans under the Progressive Farmers Loan Scheme were released early in the year but were later suspended indefinitely due to the large number of defaulters. Many items, however, remained on or were added to the subsidy list, and this scheme continued to be of great assistance to the farmer.

9. The food position was generally very satisfactory throughout the country; nevertheless slight localised shortages of specific food crops were reported on occasions.

10. The total cotton lint production from the 1963/64 crop amounted to 379,286 bales (compared with 358,333 bales from 1962/63) excluding 129 bales from research stations. The acreage planted was 2,014,242; this compared with 1,803,000 acres in 1962/63. The 1963/64 crop brought an estimated amount of £11,940,852 which went to the growers.

11. The 1964/65 cotton crop acreage was 2,138,137 acres and the production forecast was 438,000 bales.

12. The export value of the total coffee crop was £35,403,356, of which an estimated £20,951,162 went directly to growers. This compares with the 1963 total export value of £27,205,820, of which £18,782,302 went to the growers. This includes £1,127,972 realised in Bugisu during the year, which is £635,569 less than in the previous year.

The Buganda robusta crop was 164,538 tons and was worth £18,490,118.

Total coffee production was 180,134 tons, 17,946 tons more than in 1963.

13. The year 1964 saw the beginning of overseas export of manufactured tobacco; 4,912 lb. were exported, valued at £2,255. Unmanufactured tobacco exports were under half-a-ton in 1962, four tons in 1963, and 28 tons in 1964; the value of these exports for the last three years was £23, £1,016, £5,352 respectively.

Exports of cigarettes as well as cigars and cheroots, etc., to Kenya and Tanganyika amounted to 1,179,583 lb. valued at £709,689. Unmanufactured tobacco exports to Tanganyika and Kenya were 4,696,809 lb. worth £705,898.

14. Sugar exports to overseas markets amounted to 3,098 tons as compared with 11 tons and 5,030 tons in 1962 and 1963 respectively; the 1964 crop was worth £194,414 as compared with £679 in 1962 and £291,656 in 1963. By far the biggest importers of Uganda sugar and other by-products were Kenya and Tanganyika; the quantities and the value of these imports are shown below:—

Sugar	...	...	3,318 tons valued at £1,978,952
Jaggery	...	...	9 tons valued at £388
Molasses	...	...	442 tons valued at £1,073

15. The tea grown by small-holders and estate owners increased in 1964 as is shown in the following table:—

TABLE A.—TEA PRODUCTION

Quantities (tons)		Value in £	
1963	1964	1963	1964
6,072	7,495	2,292,484	2,787,000

It was estimated that the tea planted by small-holders was 2,668 acres as compared with 1,785 in 1963, an increase of 49.4 per cent.

16. There was quite good production and trade in minor crops. The acreage of sisal was estimated at 2,500 acres and produced 320 tons valued at £32,000. Exports of cereals to overseas markets involved 3,735 tons which realised a total of £83,307. Exports of chillies and other spices to Kenya and Tanganyika were 228 tons and fetched £30,706; overseas exports of chillies amounted to 382 tons and were worth £43,595.

17. In 1964 the Lango Development Co. Ltd. opened its cassava factory 1½ miles on the Lira–Kitgum road. By the end of the year 5,000 lb. of fresh cassava roots had been offered by farmers. The cassava factory initially paid 2 cents per lb. of cassava delivered to the factory, but this price was later increased to 2½ cents if transport was provided by the factory and 3 cents per lb. if delivered by the farmers.

18. The Co-operative Movement continued to expand and more processing of primary products, cotton and coffee, for example, was carried out by district unions. The co-operatives handled 87 per cent of arabica coffee and 27 per cent of robusta. There were 31 co-operative-owned ginneries which ginned 70 per cent of their own cotton, as against 58 per cent in 1963, and the co-operatives' share to gin cotton was 55 per cent of the national total.

19. The District Farm Institutes continued to offer a variety of courses to many farmers. In 1964, 7,131 people went through the institutes. The Acholi District Farm Institute, which was to be built at Pajimu, six miles on the Kitgum–Palabek Road, was not constructed because of inadequate water supply. It will now be erected in Kitgum.

20. Both Bukalasa and Arapai Agricultural Colleges offered two-year Certificate and three-year Diploma courses. Enrolment was still poor and the colleges were hardly half full; numbers were, however, boosted by the entry during the year of 28 Tanzanian students. From Bukalasa College 15 students obtained their Diplomas and 13 Certificates were awarded to both Bukalasa and Arapai finalists. There were no Diplomas from Arapai because the College was only in its second year of the Diploma course; facilities there, however, were extended to include a Machinery Operators' Training Section which, with crash-training and refresher programmes, in addition to the normal three-months' course, processed the impressive total of 472 trainees.

21. It will be recalled that in 1963 there was a free issue of D.D.T. insecticide for the control of lygus and bollworms in cotton. In 1964 this 100 per cent subsidy was reduced to 50 per cent subsidy, which meant that the farmers had to pay Shs. 16 per tin. There was a serious reduction in the number of tins bought by the farmers under these terms but nevertheless the 379,000 bales of cotton produced in 1964 was the highest since 1958/59 when production was 401,000 bales. It is thought that a lot of insecticide taken up during the free issue of 1963 was also used on the 1964 crop. There were three brands of insecticide in 1964—Dudumaki, Pambatox and Dawapam. The giving of tenders to three firms to market insecticide was to effect competition in order to reduce prices. As a result of this measure, the cost per tin of 25 per cent D.D.T. insecticide fell from Shs. 32 to Shs. 26.

22. Free spraying of coffee by the Department against antestia in Western Region, and antestia and lacebug in Bugisu, continued; 8,950 acres were sprayed in Bugisu and 8,775 acres in Western Region.

(c) Liaison with Local Governments and Other Departments

23. There were on the whole good relations and co-operation between officials of local government departments and the Department of Agriculture. At times when chiefs were pre-occupied with other duties, members of staff had to channel their advice through farmers' organisations and co-operative societies. Co-operation with other Central Government departments was also extremely good.

II. WEATHER

24. With the exception of a few areas in Northern and Eastern Regions which suffered some very heavy showers causing minor disruption in road communication and crop damage resulting from waterlogging in the August–October period, the rest of the country had very satisfactory weather. In all areas, January was dry and only slight showers occurred in February and March; from April to June there was plenty of rain which tailed off during July and part of August and then increased in intensity until late November. Under such conditions crop establishment and growth were quite satisfactory.

III. FOOD CROPS AND FOOD SUPPLIES

25. Apart from isolated areas which lacked certain kinds of food at various times in the year, the country was adequately supplied with food. Various food commodities, including increased quantities of vegetables from Kigezi, were sent to the lucrative Kampala market.

IV. ECONOMIC CROPS

(a) Cotton

26. This report deals with the marketing of the 1963/64 crop and the production of the 1964/65 crop.

27. 1963/64 Season.

TABLE B.—COTTON PRODUCTION 1953/54 TO 1964/65

Season	Estimated acreage	Bales of lint (400 lb.)	Average yield of seed cotton/acre	Average price to growers for 100 lb. of seed cotton
			<i>lb.</i>	<i>Shs. cts</i>
1953/54 ..	1,611,223	397,594	325	49 40
1954/55 ..	1,738,821	299,831	227	58 81
1955/56 ..	1,585,500	363,449	305	52 11
1956/57 ..	1,568,539	372,185	313	53 34
1957/58 ..	1,617,013	350,693	288	54 90
1958/59 ..	2,014,020	400,682	263	44 20
1959/60 ..	1,564,744	360,260	300	44 81
1960/61 ..	1,516,155	371,022	318	52 23
1961/62 ..	2,072,121	181,137	113	52 06
1962/63 ..	1,803,459	358,288	257	53 56
1963/64 ..	2,014,242	379,286	245	56 50
1964/65 ..	2,138,137	438,000	—	—

28. In 1963 there was a great effort to encourage early planting, correct spacing and the proper spraying of cotton. The response in all zones was good but the mid-year dry season, which was much longer than normal, retarded progress in planting. Favourable weather conditions prevailed in the latter part of the year and a total of 2,014,242 acres were planted, of which about 18 per cent was planted in August and September. Marketing started in November and the prices paid for clean raw cotton were 51 cents and 50 cents per pound for B.P.52 and S.47 crops respectively, and for stained raw cotton the price was 28 cents per pound, except in West Nile where the price was 29 cents per pound. The return to growers was estimated to be £11,940,852.

29. The year 1964 saw an all-out determination to make that season a record one. The participation of all related sections and departments of the Central Government and local governments as well as the co-operative unions was called for. The response, although variable, was generally satisfactory. The farmers were advised that optimum production lay in the adoption of three

basic principles, namely "Early Sowing", "Proper Spacing" and "Insecticide Spraying". To aid the farmers' memories these factors were abbreviated to "The Three S's". A total of 2,138,137 acres were planted throughout the country and these have so far yielded an all time record of nearly 438,000 bales of lint. Although the quantities of D.D.T. insecticide taken up by farmers fell in this season, it is thought that many stocks from the 1963/64 free issue of the insecticide were used.

30. Marketing of the crop began in November and the price paid to farmers for "Safi" was 57 cents for B.P.52 and 56 cents for S.47. Prices for "Fifi" were 29 cents and 28 cents for B.P.52 and S.47 respectively.

31. The Co-operative Movement acquired an extra ten ginneries during the year, bringing the total number of ginneries owned by co-operative unions to 40. Table C shows the percentage of cotton ginned by the unions zone by zone and a comparison is made with that of the previous two seasons.

TABLE C.—COTTON GINNING PERCENTAGE BY CO-OPERATIVE UNIONS

Zone	Percentage		
	1962/63	1963/64	1964/65
Mengo ..	15	25	28
Mubende ..	15	35	46
Busoga ..	35	50	55
Mbale ..	41	55	60
Bunyoro ..	50	78	85
Lango ..	20	60	75
East Acholi ..	—	60	100
West Acholi ..	—	65	70
Teso ..	—	35	60
Masaka ..	—	65	70
West Nile ..	—	100	100

32. The balance of the crop in each zone was placed on a normal pool basis between the private ginneries.

33. *Multiplications of New Strains of Cotton.*—The Kigumba cotton crop was harvested in good weather conditions. Total yields obtained were 221,498 lb. of "Safi" and 13,012 lb. of "Fifi" and the calculated yield per acre was 1,173 lb.

34. Cotton seed dressing was still carried out at specified ginneries and seed was issued free to farmers.

35. *Cotton spraying.*—There was a reduction in the sale of D.D.T. insecticide in 1964 when the subsidy per tin of D.D.T. was 50 per cent. The available figures show purchases of 25,076 tins as against an uptake of 477,118 in 1963 (it should be noted that in 1963 the insecticide was subsidised by 100 per cent). It is thought, however, that bigger acreages were sprayed than the tins bought would appear to indicate, some 1963 stocks being also used for the purpose.

36. *Amalgamation of Zones*.—No zone amalgamations were reported but it was envisaged that following the referendum in Buyaga and Bugangazzi (Mubende District), in which the people decided to return to Bunyoro Kingdom, the Mubende Zone would split in 1965 so that the above two counties went to the Bunyoro Zone, and Buwekula, which was the third county, would amalgamate with Singo.

(b) Coffee

(i) *Bugisu Arabica (1963/64)*

37. The season started with heavy flowering, forecasting heavy yields. In an effort to improve quality, instructions to growers on picking and processing were distributed by pamphlets and posters. This measure was largely successful, and there was an improvement in quality. The crop proved to be a record and totalled 9,527 tons of parchment. There was an additional 474 tons of “buni”.

During the year four new central pulperies were built, two of which began operation, and three older and silent ones were rehabilitated. It was planned to build three more to bring the number to ten in Bugisu and Sebei. The pulperies unfortunately did very little work as the farmers were not attracted by the price for cherry of 20–35 cents when many were in a position to pulp and sell parchment to the Bugisu Union for Shs. 1/60 per lb. The total value of the crop to growers was £1,881,841. All the coffee was milled in Mbale and auctioned in Nairobi where it realised an average price of £310.85 per ton f.o.r. Nairobi.

(ii) *Bugisu Arabica (1964/65)*

38. A smaller crop than last season was expected following the normal biennial fluctuation of the second largest crop. This crop reduction could also be attributed to the poor standard of husbandry, especially pruning which, coupled with heavy die back, severely affected the vigour of the trees.

39. Campaigns by the staff at the beginning of 1964 to maintain good husbandry were not very successful as 1964 was “Circumcision Year” and many farmers were pre-occupied with ceremonies and festivities.

40. Purchases of Bugisu/Sebei arabica coffee by the end of 1964 amounted to 3,347 tons of parchment but the total sales of *clean* coffee by the end of December, 1964, amounted to 1,929 tons at an average price of £344 3s. per ton f.o.r. Nairobi.

In April, 1964, some 230,000 coffee seedlings mostly from Busulani Central Nurseries were issued, and in September a further 2,000 were also given out; these issues represented about 400 acres of better quality high-yielding varieties. Some seed was also issued to private nursery owners.

41. Spraying for antestia and lacebug with teams using motoblo sprayers continued and some 8,950 acres were covered at an average cost of Shs. 32/40 per acre; an average of 1.7 pints of Malathion per acre was used. Trials were

also carried out to test the comparative efficiency of Fenitrothion with Malathion; indications were that a 50 per cent miscible Fenitrothion liquid applied at $\frac{3}{4}$ -pint per acre gave as good a control on antestia as did 50 per cent Malathion liquid at two pints per acre. Fenitrothion seemed to control lacebug better than Malathion but was rather more toxic to humans. The following table shows production figures of 11 years:—

TABLE D.—BUGISU ARABICA COFFEE

Season		Production of Bugisu Parchment	Estimated Value to Growers
		<i>Tons</i>	<i>£</i>
1953/54	..	3,122	1,231,791
1954/55	..	6,170	2,015,662
1955/56	..	4,098	1,349,756
1956/57	..	5,175	1,420,353
1957/58	..	4,805	1,198,602
1958/59	..	4,912	764,072
1959/60	..	5,791	1,013,727
1960/61	..	5,149	927,627
1961/62	..	9,704	1,935,827
1962/63	..	*3,430	585,100
1963/64	..	9,527	1,855,294

* Does not include purchases by the Bugisu Marketing Association.

(iii) *Coffee other than Bugisu Arabica*

42. The production of arabica coffee in Buganda, Western and Northern Regions, amounted to some 3,639 tons valued at £648,618. The total coffee production for the same areas was 175,021 tons valued at £19,823,190. Prices obtained during the year were as follows:—

TABLE E.—ROBUSTA PRICES—CENTS PER POUND

Dates		Dry Cherry	Rough Hulled	Parchment
<i>From</i>	<i>To</i>			
1-1-1964	7- 3-1964	45	85	78
9-3-1964	20- 6-1964	50	94	85
22-6-1964	15- 8-1964	55	103	92
17-8-1964	28-12-1964	65	120	107

TABLE F.—ARABICA PRICES—SHS./CTS. PER POUND

			<i>Shs. cts.</i>	<i>Shs. cts.</i>
1962	..	1974	1 64	1 70
1963	..	1974	1 64	1 70
1964	..	1974	1 64	1 70

43. The production of coffee from Buganda was 2,258 tons of arabica and some 120,994 tons of robusta (totalling 123,252 tons as compared with an actual total of 143,797 tons in 1963). The estimated value to growers of the Buganda crop was £18,827,256.

44. The decision by the Committee of the Bugisu Co-operative Union to pay a quality bonus of 25 cents per pound on the 48 tons of "P" pulper grade processed in 1963 sparked off demand for the erection of more central pulperies in 1964. Only three applications for construction of such pulperies were approved, bringing the total of central pulperies to seven, and it was hoped that 75-100 tons of pulper grade coffee would be produced in 1964.

(c) Tobacco

(i) *Flue-cured*

45. As in previous years the production of this type of tobacco was confined to Acholi, West Nile, Lango and Kigezi.

46. In West Nile many seed beds began to germinate in January and land preparation for the tobacco crop was already also at an advanced stage. Two crops, one in the first and the other in the second rains, totalling 2,116 acres, were planted in the district and there were 735 registered and about 400 un-registered barns to deal with the crop. 1,939,543 lb. of cured leaf were bought at an average price of Shs. 2/88, thus bringing in a total of nearly £279,053 to the farmers.

47. Two crops were grown in Acholi and the total acreage came to about 494 acres; heavy rains and some leaf curl, a virus disease, adversely affected the second crop. Total cured leaf purchase amounted to 267,515 lb. compared with 255,446 lb. in 1963. Production was equivalent to £35,184, which went to the grower. The total number of growers was about 400.

48. The final buying figures of flue-cured tobacco in Kigezi showed a total of 1,075,200 lb. green leaf at an average price of Sh. 0/07 and brought the farmer £13,568.

(ii) *Fire-cured*

49. The target of fire-cured tobacco set for Bunyoro Kingdom for 1964 was 3,500,000 lb. but the actual buying figure supplied by the Bunyoro Growers Co-operative Union who handled all the crop in Bunyoro on behalf of East African Tobacco Company was 3,545,246 lb. worth £177,439.

50. Political unrest and uncertainty in Mubende hampered tobacco growing; only 1,465 growers were registered and they produced 173,032 lb. from 273 acres. This was equivalent to 637 lb. of cured leaf per acre in 1964 as compared with 248 lb. in 1963 (this figure did not include Grade IV and scrap tobacco). Cash return to the growers was £5,498 as compared with £3,880 in 1963.

Breakdown by grades was as follows:—

TABLE G.—FIRE-CURED TOBACCO PRODUCTION BY GRADE IN MUBENDE

Grade	Poundage	Percentage of Total
Super Grade ..	Nil	Nil
Grade I ..	3,119	1·80
Grade II ..	59,539	34·41
Grade III ..	14,324	8·28
Grade IV ..	9,534	5·51
Scrap ..	86,516	50·00

51. The comparative figures of the 1962, 1963 and 1964 seasons are given below:—

TABLE H.—COMPARATIVE STATISTICS FOR RECENT YEARS IN MUBENDE

	1962	1963	1964
Total cured leaf lb. ..	83,053	75,828	173,032
Value to grower ..	£4,203	£3,880	£5,498
Average price/lb. ..	Shs. 0·95	Shs. 1·08	Shs. 0·64

52. By the end of February, 1964, about 9,000 seed beds, which had to be watered twice a day due to drought, had been planted in West Nile. A total of 1,537 acres was later planted which resulted in an increase of more than 1,000 acres over the previous season.

The season was generally normal and marketing took place from September 21st until November 23rd. Production was as follows:—

TABLE I.—TOBACCO PRODUCTION BY GRADE AND VALUE

Grade	Price	Poundage	Value to growers
	Shs. cts.		£
I ..	1 50	332,316	24,923
II ..	1 10	592,407	32,582
III ..	0 70	404,378	14,153
IV ..	0 40	92,500	1,850
Scrap ..	0 30	2,502	37
	TOTAL	1,424,103	£73,545

53. Tobacco production for the last four years is summarised opposite in Tables J and K.

(d) Tea

54. Popularity of and interest in tea production continued in 1964; the number of people employed in the crop and the number of participants also rose. In Western Region small-holders' tea acreage increased by 762 acres from 1,606 to 2,369 acres; the number of people growing the crop rose from 609 to 860. The total value of Uganda tea was £2,787,000 compared with £2,292,484 in 1963, reflecting an increase of 21·5 per cent.

TABLE J.—FLUE-CURED TOBACCO PRODUCTION

	WEST NILE				ACHOLI				LANGO				KIGEZI			
	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964	1961	1962	1963	1964
Acreage ..	1,803	970	1,564	2,116	894	540	587	494	13	14	14	12	641	628	533	624
Production (cured-leaf) in lb. . .	1,094,508	932,016	1,142,018	1,939,543	394,624	311,496	255,446	267,515	3,901	2,708	2,396	2,974	207,100	150,000	179,934	133,779
Total price to growers	£ 58,476	£ 71,166	£ 34,556	£ 279,053	£ 32,210	£ 45,665	£ 31,583	£ 35,184	£ 562	£ 341	£ 312	£ 434	£ 4,380	£ 4,104	£ 5,011	£ 4,507
Average price/lb. . .	Shs. cts. 2 62	Shs. cts. 2 66	Shs. cts. 2 57	Shs. cts. 2 88	Shs. cts. 1 72	Shs. cts. 3 90	Shs. cts. 2 46	Shs. cts. 2 63	Shs. cts. 2 88	Shs. cts. 2 52	Shs. cts. 2 60	Shs. cts. 2 92	Shs. cts. 0 06	Shs. cts. 0 06	Shs. cts. 0 06	Shs. cts. 0 06

TABLE K.—FIRE-CURED TOBACCO PRODUCTION

DISTRICT	ACREAGE					1960	1961	1962	1963	1964
	1960	1961	1962	1963	1964					
Bunyoro ..	3,438	3,219	4,855	6,500	6,679	1,535,287	1,319,832	2,174,929	2,123,086	lb. 3,545,246
Mubende ..	212	308	289	305	237	63,003	101,653	83,400	75,828	173,032
West Nile ..	1,162	1,001	1,500	1,435	1,537	1,535,287	527,047	977,819	802,377	1,424,103
TOTAL ..	4,812	4,528	6,644	8,240	8,453	3,133,577	1,948,532	3,236,148	3,001,291	5,142,381

55. The tea crop is grown mainly for export but an increasing internal market has also been established. The total of made tea produced in the last four years is as follows:—

TABLE L.—TEA PRODUCTION

	1961	1962	1963	1964
	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>	<i>lb.</i>
Made tea ..	11,278,158	13,876,370	13,601,280	16,788,800
		Value ..	£2,290,000	£2,787,000
Exports overseas ..	—	—	12,107,200	13,322,080
		Value ..	£2,040,672	£2,211,596

56. The tea industry continued to attract investors from all walks of life, full-time farmers, co-operative groups of farmers, etc. Total acreage by small-holders was 2,668 acres compared with 1,785 in 1963.

(e) Sugar

57. There was an increase in sugar acreages and production in 1964; the acreage of sugar-cane at the estates of Kakira, Lugazi and Sango Bay rose from 38,460 acres to 44,323 acres, the increase resulting from the establishment of the new Sango Bay estate covering an area of 5,863 acres.

58. The acreage grown by the small-holder was estimated to be 2,369 which was some 763 acres higher than the 1963 figure of 1,606 acres.

59. The total sugar production in 1964 was 7,495 tons and realised £2,787,000 as compared with 6,072 tons and £2,292,484 respectively for 1963. The conversion of by-products into spirits of various kinds continued in 1964.

(f) Cocoa

60. The year 1964 witnessed further development in the cocoa industry. A total of 918 acres, compared with 555 acres in 1963, was under cocoa by the end of the year. During the year production amounted to 12 tons and was valued at £2,232. The total increase in cocoa acreages was brought about by an increase in the number of holdings.

61. The weather on the whole was very favourable to cocoa growth and the crop flowered and podded heavily. There was a lot of damage by monkeys and Verticillium Wilt which seemed to be a disease of increasing importance. A fermentary at Kituza was in operation throughout the year. Farmers were showing keen interest in this crop but if future production was not going to suffer an effective method of monkey control would have to be devised.

(g) Maize

62. Overseas exports of milled and unmilled maize in 1964 amounted to 2,942 tons valued at £58,084. This compares with £167,028 in 1962 and £148,874 in 1963. Exports to Kenya and Tanzania of milled, unmilled and maize germ meal amounted to 7,845 tons, worth £167,499.

63. The estimated acreage under maize in 1964 was 537,500 acres as against 394,400 in 1963. The big increase in planting was mainly attributed to the relatively high prices of 1963 which stimulated production; many farmers also realised that maize is relatively cheap to produce. A large proportion of the maize was eaten green by the local population.

(h) Minor Crops

64. The vanilla crop of the Outgrowers' Scheme based on the Salama Estates in Buganda attracted more and keener interest from farmers but planting was restricted by lack of planting material. However, there were 539 one-yard vines planted at the end of May. This brought the total number of outgrowers' vines to 1,275 since the scheme started. Most of the crop planted in 1962 flowered profusely but pollination, which must be done by hand, was a great problem. In 1964, two tons of vanilla as compared with only one ton in 1962 and in 1963, were exported overseas and fetched £8,462.

65. The overseas export of minor crops included 382 tons of chillies valued at £43,592 and 190 tons of papain worth £356,334. The export of 297 tons of soya beans fetched £8,596 and 1,502 tons of other pulses realised £27,543 on the export market.

66. Exports of sisal amounted to 274 tons, worth £29,465 compared with 343 tons worth £44,449 in 1963.

(i) Oil seeds and Products

67. Trade in the various oil seeds and their products continued but cotton seed oil and cake were the most important. Overseas exports in these cotton seed products amounted to 63,394 tons, worth £1,700,121. The exports to Kenya and Tanzania in 1964 amounted to 69,781 tons and were valued at £849,080. Total exports were therefore 133,175 tons, worth £2,549,201.

68. The acreage under groundnuts in 1964 was 617,500 acres. 178 tons were exported to Kenya and Tanzania and earned £10,606; at the same time 135 tons of groundnut oil, equivalent to £14,783, were sold to the same countries. Overseas exports amounted to 3,804 tons of groundnuts and brought in £233,273.

69. Castor seed overseas exports were the lowest since 1962 and amounted to 1,967 tons valued at £88,471. Planting of castor seed was systematic in Mubende, Masaka and North Singo. Growth was generally good in these areas. Castor is a particularly useful crop as its growing season does not coincide with that of most major cash crops.

70. Exports of oil seeds included those of sunflower and sesame whose details can be found on Appendix V (a) and V (b).

V. AGRICULTURAL DEVELOPMENT AND EXTENSION WORK

(a) Soil Conservation

71. The Department of Agriculture still placed major importance in the vital control of soil erosion. Departmental staff co-operated with chiefs, progressive farmers and farmers' clubs in an effort to encourage various methods of soil conservation; these included strip cropping, discriminate grass burning, contour cultivation, crop ridging, crop mulching, paspalum bunding and three-yard grass strips. Measures employed varied from one locality to another, depending largely on topography, climate and pedological characteristics.

72. The success of the soil conservation campaigns was very variable in the country and there was still much room for improvement in many areas.

73. Competitions were held which did a lot to encourage soil conservation techniques, but follow-up work was still necessary to see that the good work achieved did not deteriorate.

(b) Progressive Farmers

74. During the year the Department continued to pay attention to both progressive farmers and other farmers. In the field of progressive farmers the Department continued to encourage more farmers to become good farmers in order to use them as models of good and sound agricultural practices. The staff strived to orientate progressive farmers' thinking so that these people would begin to regard farming as a business enterprise which demanded careful planning. Most of the activities of the staff were directed to the rest of the farming community and frequent visits were made to farms. The farmers were urged to look for and consult a member of the Department for agricultural advice as it was impossible for the existing staff to visit every individual home in the course of one year.

75. Large sums of money lent under the Progressive Farmers' Loans Scheme were not being promptly recovered and as a result the scheme unfortunately had to be indefinitely discontinued.

76. A lot of Government assistance was still available to many a progressive farmer under the subsidy scheme. The subsidy was intended to enable people to buy hand-pushed seeders, ploughs, tractors, ox-cultivation equipment and other farm implements.

77. The Co-operative Credit Scheme continued to operate and £154,000 had been lent to credit-worthy societies by October, 1964.

(c) Animal Husbandry and Pasture Work

78. The Department of Agriculture continued to advise farmers to adopt improved methods of animal production. These included rotational grazing, fencing, controlled grass burning, the application of manures, and the acquisition

of better quality stock, either exotic or cross-breds. As a result of efforts by the staff and the farmers' enthusiasm, a total of over 14,317 fencing posts, compared with 6,537 in 1963, were purchased; the number of exotic cattle rose from 3,753 in 1963 to 5,987 in Buganda, and a total of 350 exotic animals was kept in the Western Region and 600 in the Eastern Region. In Buganda about 159 farmers enclosed their farms, and some 4,600 acres were fenced and 500 kraals built in Western Region. Over 6,138 rolls of barbed wire were purchased over the country.

79. A large area was set aside for ranches in north Buganda and by the end of 1964 sixteen of the twenty ranches had been taken up.

Many farmers showed keen interest in poultry-keeping and chicken wire-netting was available on subsidy to interested farmers. There were roughly 7,366 pigs under good intensive management. Corriedale and Romney Marsh sheep were reared at Bushenyi and Kyembogo in Western Region.

80. The normal seasonal availability of grazing was experienced in 1964. January and February, as well as July and August, were generally the times of scarcity. Many farmers bought and sowed improved legume/grass mixtures.

81. Many courses on livestock management were held at District Farm Institutes for the benefit of the farmers with particular interest in the subject, and lectures on Animal Husbandry were often part of the short courses on general agriculture.

(d) Irrigation and Swamp Reclamation

(i) Kigezi.

82. The acute shortage of cultivable land necessitated further progress in the swamp reclamation work. The Departments of Agriculture and Water Development liaised closely in the swamp drainage work and the maintenance of existing channels. The farmers were keen to take up the drained swamps and grew sweet potatoes, maize, English potatoes, vegetables and other annual crops.

83. There were three main areas of drainage work, namely Kashambya, Kiruruma South in Ndorwa County, and Kiruruma North in Rubanda County.

84. The following table shows the work that has been achieved so far in the main three areas mentioned above:—

TABLE M.—KIGEZI SWAMP AREAS AND THEIR UTILISATION.

Swamp	Total area of swamp	Gross reclaimable area	Area reclaimed at end of 1964	Cultivated area	Percentage of cultivated area reclaimed
	<i>acres</i>	<i>acres</i>	<i>acres</i>	<i>acres</i>	
Kashambya ..	2,020	1,230	780	620	79.5
Kiruruma South ..	5,950	4,300	2,110	1,380	65.4
Kiruruma North ..	3,000	1,870	1,130	710	62.8
TOTAL ..	10,970	7,400	4,020	2,710	67.4

85. The farmers on the scheme grew plenty of vegetables which were sold by the Kigezi Vegetable Union with the assistance of both Co-operative Development and Agricultural Departments. A total of 590.5 tons of mixed vegetables were bought by the society from the members.

(ii) *The Mubuku/Sebwe Irrigation Scheme*

86. The main purpose of these schemes is to illustrate the possibilities of large-scale development of irrigation with mechanisation. There are two sections in the scheme; one section is cultivated by the tenant farmers and the other section is devoted to the Variety Trial Centre. The production on the tenant farms was as follows:—

TABLE N.—TENANT CROP PRODUCTION IN LB. IN MUBUKU/SEBWE IRRIGATION SCHEME

Crop	Farm I	Farm II	Farm III	Farm IV	Farm V
Maize ..	1,578	1,828	1,379	2,515	1,996
Groundnuts ..	1,830	1,530	960	820	1,023
Cotton ..	884	547	994	1,005	1,070

87. On the experimental side investigations were carried out on cotton, beans, maize and onions. The highest yielding bean variety was "Banja two" which yielded 1,884 lb. per acre and close runners up were No. 35 and No. 47 with 1,846 lb. per acre and 1,762 lb. per acre respectively.

88. In the maize trials MH/59 was the best yielder with 3,704 lb. per acre and 53 IIIRRM/58 came next with 3,562 lb. per acre.

89. The best onion was the Red Creole Hybrid which yielded 15,853 lb. per acre and Bergundy Red was next with 14,040 lb. per acre.

90. The test herd of seven cows, four heifers, two bull calves and one heifer calf continued to thrive well.

91. Grass experiments for possible pastures were laid out and a nursery was also established to test new grasses and legumes. Several promising legumes and grasses were noticed and they were *Lucerne Harry Peruvian*, *Desmodium distortum*, *Desmodium intortum*, *Guatemala-grass* and *Themeda giganteae*.

(iii) *Prospecting team*

92. During the year a team of irrigation experts visited south and north Busoga, as well as parts of Bukedi and Bugisu, the Sebei plains, parts of Teso, Karamoja and Acholi.

(e) *Settlement Schemes*

93. There was a large influx of refugees into Uganda during 1964 and the Department of Agriculture was engaged in supplying seed for food crops and also in marking out plots for families wherever refugee camps were sited. Settlement areas existed in Kigezi, Toro, West Nile, Acholi, Karamoja and Bunyoro.

94. In the Kahunge resettlement area of Toro, Rwanda refugees continued to flow from the Oruchinga Valley in Ankole. They were settled in 100-acre blocks for every ten families. More refugees with their cattle arrived towards the middle of the year and were settled in Ibuga, Rwamwanja and in South Kyaka. In Toro Kingdom alone, there were about 11,482 refugee settlers.

95. At Bigodi and Nkongora resettlements in Toro, the settlers were growing coffee and cotton as their cash crops, and maize, sorghum and groundnuts as the main food crops.

96. Towards the end of the year, 2,500 settlers moved from the Oruchinga Valley in Ankole to take up plots in the Kigumba area in Bunyoro, where land clearing to form a tsetse barrier was under way. It was hoped that 10,000 people would eventually be resettled in these cleared areas.

97. In addition to these resettlements there were two School Leavers' Resettlements; one at Nyakashaka in Ankole organised by Mr. S. Carr of Inter-Church Missionary Aid and another at Rwentare (Kikagati) sponsored by the missionaries at Nyarushanje Farm School. The former resettlement was in its second year of operation and the first twenty people to join the scheme were growing tea, as well as some vegetables, and were keeping a few exotic cattle and poultry. It is planned that after two to three years each settler will have five acres of tea. At Nyarushanje the trained boys continued to work on their 20- to 27-acre holdings. All the school leavers are given loans to help them build their houses.

98. During the year arrangements were made to resettle Congolese and Sudanese refugees in West Nile, Acholi and North Karamoja; an officer of the Agricultural Department was seconded to the Ministry of Community Development for this purpose.

99. At Ndaiga in Buyaga County, a part of Buganda Kingdom until 4th November when it returned to Bunyoro Kingdom, an intensive settlement and development scheme was undertaken. 691 acres were ploughed and disced. The future success of the scheme after the above date of political transfer to Bunyoro was rather uncertain.

(f) Ox-cultivation

100. The staff of the Agricultural Department held several demonstrations on ox-cultivation at District Farm Institutes, farmers' holdings and at prison farms in all districts. The response to these campaigns was very variable. The staff also trained farmers' oxen.

101. In Buganda, the areas where ox-cultivation took root were Buruli, Bugerere and Mawogola. The acreage ploughed by oxen was 384 acres as against 471 in the previous year.

102. Interest in Western Region was also little and only 100 acres were ploughed in 1964. Northern and Eastern Regions continued to take keen interest in this work, particularly so because they have more cattle and the land there is more suitable for this kind of cultivation. Several instructors were recruited

and given crash-training; they were then sent out to demonstrate to farmers the various ox-equipment as well as train the farmers themselves in ox-management.

103. The use of oxen and the accompanying equipment did a lot to enhance the number of plots growing two crops in one year.

104. During the year the French Tropiculteur and Ariana machines were recommended by the Department but importing difficulties resulted in few being available.

VI. AGRICULTURAL EDUCATION

(a) Agricultural Colleges

105. The minimum entry qualifications to the colleges for a Diploma Course at Bukalasa and Arapai were Cambridge School Certificate or General Certificate of Education with a pass in mathematics and credits in biology and physics with chemistry, or pure physics and chemistry. The two-year certificate course required a pass in the same examinations as above with one credit in science, excluding health science and a pass in mathematics.

106. At Arapai College, facilities were intended to include a Machinery Operators' course with crash-training and refresher programme. In addition to the normal three-month courses, 472 trainees altogether were enlisted. As an example of inter-territorial co-operation, the college also admitted 28 Tanzanians.

107. Both Bukalasa and Arapai Colleges received considerable aid from the United States Agency for International Development, in the form of not only staff but also materials.

108. At Arapai five students completed the certificate course. There were 29 first-year students for the Diploma Course in Mechanisation; 14 Ugandans were in the second year of the normal diploma course and 28 Tanzanians undergoing similar training.

109. During the year two senior staff quarters, an extension to a mechanical yard wing and a sheep house were being built. The modifying of the exotic cattle unit to a sheep house, additions to the dining hall facilities, the enlargement of the mechanical demonstration room, were some of the major pieces of work completed.

110. At Bukalasa, intake was still below capacity. Fifteen people were awarded their diplomas and another eight their certificates.

111. The co-operative wing of the Agricultural College became a Co-operative College, and thus a somewhat separate entity with its own Principal; the policy of the integration of the students from the two colleges remained and it was hoped this would create better co-operation among the graduates from the two wings in the field.

112. Perhaps the major developments during the year were the acceptance by the University of East Africa of College Diplomas as special qualifications which can be considered for entrance to the Faculty of Agriculture, and the progress towards an East African Diploma in Agriculture. For the latter a draft syllabus and regulations for the examinations were drawn up and it was hoped the first examinations would be held in December, 1965.

113. At both Arapai and Bukalasa very successful courses in extension methods were run by the Israeli and American experts for the benefit of in-service departmental officers.

(b) District Farm Institutes

114. By the end of 1964, ten District Farm Institutes were operational, the additional two institutes which were additional to the 1963 total were Nabuin in Karamoja and Kachwekano in Kigezi. The institutes catered for different types of students which included chiefs, in-service staff of the Agricultural Department, farmers and members of the co-operative societies. There were 8,521 students as compared with 5,800 in 1963. Plans were actively under way for the establishment of other D.F.I.'s in Bunyoro, Acholi and Mityana in 1965.

115. The main functions of the District Farm Institutes remained to demonstrate to farmers good agricultural practices, to teach or train them in some of the various techniques of good crop and animal husbandry and also to allow other departments allied to agriculture to give lectures to the students for the ultimate general education of the farming community.

(c) Farm Schools

116. There were eight Farm Schools in the country; they were Wairaka (Busoga), Amucu (Teso), Gulu (Acholi), Koboko (West Nile), Aler (Lango), Nyarushanje (Kigezi), Bulindi (Bunyoro), and Kaabong (Karamoja). In Gulu there used to be two such schools run by different Christian denominations but these amalgamated during the year. The farm schools were directly under the Ministry of Education and offered courses of up to four years in general agriculture. The old boys from these institutes were expected to make the nucleus of good progressive farmers. Many of these students, however, found jobs in different departments rather than started farming on their own.

VII. MECHANICAL CULTIVATION

(a) General

117. The year 1964 saw the implementation on a very wide scale of the massive mechanical cultivation policy. A force of 250 new tractors and ancillaries was introduced by Government and this necessitated vast expansion in the mechanical development section of the Agricultural Department. Crash-training programmes for tractor drivers and operators were arranged. The land planning section was expanded to keep up with the work necessary to plan group farms

and about 40 expatriate officers were recruited to manage these farms as well as tractor hire service schemes. Widescale demonstration of ox-drawn equipment was also carried out but farmers were disappointed by the failure of some firms to import the Tropicteur and Ariana machines before the closure of the 1963/64 and 1964/65 financial years when large sums were available for subsidy. The bush clearing teams, in order to establish control barriers for tsetse fly, were in full swing in Bunyoro and in Ankole. This work was done by the special development section of the Department of Agriculture on behalf of the Ministry of Animal Industry, Game and Fisheries.

(b) Group Farms

118. It was 1964 which witnessed the proper birth of the group farms which are intended to serve as foci of integrated rural agricultural development. On these farms the use of mechanical equipment was expected to be cheap as well as serving to boost productivity of the farmer and his land, thus improving the farmer's economic welfare. By the end of 1964 there were 16 group farms distributed over the country as shown in Table O below, which also shows the number of acres which were involved in the year's cultivation.

TABLE O.—TRACTOR CULTIVATION ON GROUP FARMS

Region	District	Name of Farm	Cultivated Acreage 1964
NORTHERN ..	Achoi ..	Ogwangan ..	648
		Inomo ..	299
	Lango ..	Awangi ..	365
		Pukwero ..	372
	West Nile ..	Madi ..	107
		Palaro ..	63
		Olia ..	50
		Bukeri ..	50
EASTERN ..	Teso ..	Amilimil ..	322
		Alwa ..	459½
	Bukedi ..	Bumiza ..	74
		Kapyanga ..	179
	Busoga ..	Nakabale ..	147
		Kisozi ..	59
		Nabirumba ..	172
WESTERN ..	Bunyoro ..	Akumulikire ..	171
BUGANDA ..	Mityana ..	Butalale ..	92
	Mukono ..	Bulawula ..	390

119. Most of the land on the group farms was planted to cotton but other crops like maize, finger millet, sorghum, bulrush millet, and sunflowers were also grown.

120. There was a great demand by the rural community for group farms and it is proposed that twenty new group farms be established every year.

(c) Tractor Hire Services

121. The Agricultural Department's tractor force was engaged both on group farms and on tractor-hire service operations. 250 more tractors were purchased during the year bringing the total number of tractors owned by the Department to 394. With this expansion many more farmers were able to use the services of mechanical equipment provided under this service and total revenue earned by this work increased to Shs. 863,686/37. The average number of revenue-earning hours run per tractor was unfortunately low, being only 290 hours, a situation caused by the majority of the new tractors arriving late in the season. It remains the Department's policy, however, to raise this utilisation figure by keeping the tractors working for as much of the year as possible.

122. Over 34,000 acres were cultivated by the tractor-hire service during the year as compared with only 11,702 acres in 1963 (when there were 146 special development tractors in Uganda) and 6,413 acres in 1962 (cultivated by 34 tractors). It can be seen that over five times as many acres were mechanically cultivated by special development in 1964 than was the case two years previously.

VIII. INVESTIGATIONS

(a) General

(i) *Serere Farm*

123. Good early rains facilitated timely planting of the first rains crop in 1964 and harvesting, particularly of groundnuts, was facilitated by dry weather in the first half of July. In the second rains a dry spell in August temporarily checked growth, particularly in the latter plantings; but there was good recovery with the heavy falls of rain in September and October. In spite of these heavy rains totalling 15.39 inches for these two months, cotton picking went smoothly and even the cotton left on the plants for a machine-picking trial was not badly stained or knocked on the ground. November and December were unusually dry.

124. With regard to development, a total of 1,362 man-days was spent on hand-digging Lantana in the permanent pastures and on Kakudam Hill as a follow-up to the eradication programme of previous years. With the severe 1964/65 dry season there was not enough active growth to warrant spraying with 2-4 D., but by the end of the year there were signs that the insect *Teleonemia* sp., introduced in 1963, was exerting some control by defoliation. There was re-alignment and replacement of fences, and ring paddocks 6 and 7 were subdivided to accommodate the goat breeding herds.

125. Buildings at the kraal were renovated and altered to provide accommodation for the goat breeding scheme. New tractor and implement sheds and a carpenter's workshop were also completed. Towards the end of the period under review the National Housing Corporation commenced work on two senior staff single quarters adjacent to the rest house, on the renovation of the training centre, and construction of fifteen new junior staff houses.

(ii) *Kawanda Farm*

126. The rainfall for 1964 was 63.73 inches, 20 inches more than the 19-year average. The distribution was good with the longest dry spell being only eight days.

127. The 1963/64 cotton crop yielded only 233 lb. per acre but for 1964/65 the yield should be of the order of 450–500 lb. The ten-year average yield for Kawanda is about 450 lb. At Ssenge farm the anticipated yield from a ten-acre spraying trial was expected to be 800 lb. per acre.

128. First rains crop averages were as follows:—

Maize	...	...	1,473 lb. per acre over 22 acres;
Beans	...	...	400 lb. per acre over 14 acres;
Groundnuts	...	...	1,134 lb. per acre over 6 acres.

129. Elephant grass on the farm still yielded well when fertilised, but the so-called “stunting disease” was spreading. Elephant grass proved difficult to manage on a large scale and there was a tendency to rely more on the short grasses for feeding all young stock and for conservation.

130. During the year the Spectrographer and the Coffee Physiologist retired, but Dr. J. E. Hardy arrived on appointment as Chief Research Officer and Kawanda staff was further strengthened by a Senior Laboratory Technician later appointed to the Spectrographer vacancy. Approximately half the establishment of professional posts continued to remain vacant.

131. The Ssenge farm was fenced into ten-acre blocks and pasture experiments were scheduled to start in earnest in 1965. Young exotic cattle were moved to the farm in the first half of the year when the fields were considered adequately tick-free, but in October the ticks increased in number. Seven cattle died of East Coast Fever and the exotic animals were moved to Kawanda.

132. An increasing amount of non-research work was carried out by specialist officers, *e.g.* work concerning group farms, proposed sugar developments, and plant importations.

(b) *Soil and Land Use Surveys*

(i) *Group Farms*

133. The main work here was the carrying out of soil surveys and the general appraisal of sites proposed for group farms. The land planning team was charged with the responsibility of assessing the various factors determining the suitability of any site for group farm establishment. The new areas considered by the planning team included Iceme and Aloro in Lango District; Isimba, Kitindura, Kihonda and Kitonzi in Bunyoro; Butalale and Luzira in Buganda, plus various other sites in many parts of the country.

(ii) *Lake Kijanibarora and Bukora Flats Survey*

134. Assistance was given to the Water Development Department with their investigation into the feasibility of controlling the flood waters of the Koki lakes in Masaka District with a view to either impounding the outlet so that outflow

could be regulated and possibly used to irrigate the Bukora alluvial flats or draining Lake Kijanibarora and cultivating the lake bed. A rough comparison between the potential fertility of the two sites was made by examining the soils from the flats and lake bed sediments and comparing their analytical data. Evidence from the analysis suggested that the lake sediments might yield the more fertile soils but this depended entirely on the uniformity of the lake bed material.

(iii) Estate Crops

135. In accordance with the wishes of one of the visiting teams of experts interested in the development of the sugar-cane industry in Uganda, soils were examined and sampled in an area of south Busoga where a sugar estate might be developed.

136. Vanilla plots at Salama Estate (Agricultural Enterprises Limited) were visited to see suspected cases of Boron deficiency, and material was collected for analysis. It was shown later, however, that roots were being killed off by a *Fusarium* attack and it seemed unlikely that any drop in yield was due to nutritional deficiency. Other investigations of a similar nature on other crops like tea were also carried out.

(c) Soil and Plant Chemistry General

137. The data from the series of permanent annual crop manurial experiments in Buganda, Western Region and West Nile were still being analysed by the computer at Rothamstead Experimental Station.

138. The experiments on the effect of heavy applications of triple superphosphate at Kawanda were completed. For the last three years 170 lb. of P_2O_5 (phosphoric acid) per acre as triple superphosphate was applied in various ways designed to maximize its effect in conjunction with supplementary fertilizers, farmyard manure or lime. The effects on the yield of maize and cotton taken indicate that phosphorus was taken up by the plants but reduced rather than increased yields. It was concluded that on Buganda clay loam soil the previous poor responses to phosphatic fertilizers could not be improved by heavy rates of application as have been reported to be effective elsewhere.

139. Two old experiments, one measuring the soil regenerative effects of various grass treatments and the other comparing farmyard manure, nitrogenous phosphatic, potassic, magnesium and sulphur fertilizers and elephant grass rest, continued under a final crop of cotton before being changed to new experiments in 1965. Their results are being written up.

140. The taking of leaf samples for chemical analyses from maize, cotton, groundnuts and finger millet continued in 1964. A sand-culture experiment was also carried out with cotton plants under different rates at two nutrient levels, and to investigate further which leaf sample is the best indicator of the plant's nutrient status and obtain a guide to critical nitrogen levels.

(d) Herbicide Research

141. Following a visit by the botanists of the Tropical Pesticides Research Institute, herbicides were increasingly used in coffee experiments on weed control in maize, cotton and groundnuts, using in particular the pre-emergence herbicides like Diuron, Cotoram, Prometryne, Linuron, Simazine and Atrazine. The herbicides did not yield conclusive results but the more promising treatments were to be included in similar trials planned for 1965.

(e) Chemical Analysis

142. Soil and leaf samples were analysed; these mostly came from group farm sites and other survey sites.

(f) Crop Protection Machinery

143. The activities of this section can be summarised under three headings as follows:—

(i) *Machinery activities*

The development of a dehumidifier for the preservation of specimens in the entomological museum and herbarium. An airblast sorting device for small quantities of coffee, groundnuts and beans was constructed. A low volume airblast sprayer with abnormal vertical throw capacity was developed on a stretcher base and submitted for trials to the Uganda and Kenya Forestry Departments. Its function was to facilitate the low volume control of *Dothichoma*. A humidification tunnel was constructed in conjunction with the Coffee Marketing Board with a view to controlling dust hazards in exhaust ventilation systems of coffee factories. A time-of-planting herbicide applicator was developed for trial at Serere in conjunction with the Cotton Research Corporation. A high-pressure pumping unit with a special gun was produced for the bush clearing units. A version of the Gatooma Boom was constructed; those ordered for the Kasese and Ssenge trials did not arrive in time. A Danish-made diaphragm pump was tested. Considerable work was done on the testing and modification of three types of motorised knapsack sprayers.

(ii) *Field Trials*

Coffee berry disease low-volume spray trials continued in Kigezi in conjunction with the members of the Coffee Research Unit, and a new type of Japanese sprayer was included. Trials of the high lift airblast prototype were carried out by the East African Agricultural and Forestry Research Organization at Muguga. Pasture-spraying tests were carried out with the botanists. The Kigumba cotton seed increase area was sprayed with a new Evars and Wall unit. A bean-spraying fungicide trial was carried out at Kigumba with the plant pathologist. Two different tail booms were introduced into trials at Serere and Kasese.

(iii) Other activities

Considerable effort went into producing a mobile cotton pests exhibition, with assistance from the Soil Survey Officer in the provision of suitable photographs. This exhibition toured the eastern and northern regions with a lecturer instructing departmental staff. A display was provided for the Y.M.C.A. exhibition. Correcting and re-shooting the cotton-spraying film was done at Serere. The usual lecturing of students, visitors and staff was carried out.

(g) General Entomology

144. Work on the cotton crop was mainly concerned with the chemical control of insect pests. Five trials at Serere were supplemented by subsidiary trials at Tororo, Ngetta, Labori and Abi farms. At Serere a spray interval trial confirmed that a 14-day interval was better than a 21-day trial and showed very little benefit from increasing the number of sprayers from four to six. In a test of newer insecticides none proved greatly superior to D.D.T., but Endosulfan, as well as being effective against bollworm pests, gave good aphid control and appeared to retard the building up of red mite. The spray interval studies at the subsidiary centres referred to above confirmed the superiority of the recommended four sprays at 14-day intervals.

145. Studies were started on the main shed worm and bollworm in Northern and Eastern Uganda. An extensive survey of the alternate host plants in the Serere area was made, and many host plants were being cultivated under grass. Life history studies on *Cryptophlebia Leucoreata* (Earias), *biplaga* and *insulana* and on *Pectinophora gossypiella* *Heliothis armigera* were carried out. Research on the importance of predators on bollworm population also started.

146. Experiments on the use of the systemic insecticide menazon for controlling aphids on groundnuts continued. The insecticide has very low mammalian toxicity and showed considerable promise. Experiments showed that a large and progressive reduction in the percentage of rosetted plants occurred as the seed rate was increased from 60 lb. to 120 lb. per acre.

147. No locusts were reported from anywhere in Uganda for the second year running—thanks to the work of the Desert Locust Control Organization for Eastern Africa outside our boundaries. No outbreaks of Army worm occurred but monthly light-trap records of this moth were kept.

(h) Crop Investigations and Research—Annual Crops

(i) Maize and other Cereals

148. District variety trials were conducted at 28 centres in the first rains and at 16 centres in the second rains. The varieties tested were 5314RRM/5 ("White Star"), 5354RRM/58, KM/54, MH/59 and Kitale Synthetic II. In general "White Star" gave the highest yields at most centres except in Western Region where MH/59 yielded best. It is noteworthy that even on Mount Elgon (Nabbongo) the Kawanda-bred maizes (especially "White Star") considerably outyielded the Kenya-bred Kitale synthetic. Observations on palatability of the different maize varieties when cobs were eaten at the green stage gave variable

results, but the RRM varieties were at least as palatable as the other three and in many places were found to be more palatable. Improvements of yield and of grain quality continued to be the main objectives in breeding and selection work at Kawanda.

149. Quite severe outbreaks of the maize tassel beetle were reported from Mengo in Buganda Kingdom. This pest is, however, readily controlled by dusting the silks with 10 per cent D.D.T. dust.

150. The East African Agriculture and Forestry Research Organization Sorghum Breeding Unit is an independent body based at Serere and the following information is an extract from the annual report of the Unit.

151. The variety Serena performed well in the regional trials, yielding an average of 1,736 lb. of grain per acre in 38 sites, compared with 1,469 lb. from Dobbs. Serena reaches maturity ten days earlier than Dobbs. The Serere Hybrids H x 57 and H x 58 continued to show their superiority. H x 57 showed a yield increase over its pollinator parent SB 65 of 55 per cent at the 1,000 lb. per acre level. The hybrid H x 58 tends to suffer from lodging.

152. Hybridisation and selection in the parent varieties of the hybrids aimed at correcting the defects in the hybrids (defects such as excessive height, lodging, susceptibility to leaf blight and to central shoot fly, etc.), were continued. Recurrent selection methods were applied to Sorghum populations including a proportion of malesteriles to ensure plenty of hybridisation. This should result in improving varieties and hybrid parents in the long run.

153. Trials were planted in the district to estimate response to nitrogen and phosphate fertilisers of maize, a sorghum variety (Serena), and a sorghum hybrid (H x 57). The linear nitrogen response was positive and significant for all entries although it was much greater for maize. The linear phosphate response was significant for the sorghum, and Serena showed a positive quadratic response to phosphate as well.

154. In tasting and brewing trials in Teso, several Serere sorghum grain varieties and hybrids prepared as "atap" (thick paste) were preferred to finger millet, especially Serena, H x 57 and H x 58. Maize and bulrush millet were not liked. Serena and H x 57 also showed up well in the brewing tests.

155. Atrazine and Linuron herbicides used as pre-emergence sprays showed promise in preliminary trials.

(ii) Beans

156. The programme of hybridisation, selection, preliminary testing and district variety evaluation continued with the aim of producing high-yielding more disease-resistant types. A considerable amount of hand hybridisation and progeny testing was carried out and the plant populations were being bulked for further selection. Variety testing carried out at Kawanda and Bukalasa in the first rains and at other centres in the second rains indicated that varieties Kawanda 35, and Kawanda 47 yielded best.

157. Spacing trials in the second rains showed that 2-ft. rows by 6-in. and 3-in. gave the highest yields. In poorer soils a benefit from higher populations was observed, the yields of beans apparently depending much more on the level of soil fertility than on plant population in normal plantings.

158. Studies on the race-and-strain differentiation of the important bean disease continued. The geographical distribution and incidence of bean diseases were again observed on district microplot trials scattered all over Uganda. At least one strain of *Colletotrichum Lindemuthianum* (*Anthracnose*), obtained from Kakumiro, showed a wider range of pathogenicity on standard differentials than any of the three commonly recognised race groups, *alpha*, *beta* and *gamma*. In addition, a new variant of bean rust race has been found in collaboration with E.A.A.F.R.O. at Muguga (Kenya) capable of infecting variety Tengeru 16, hitherto resistant to the race. These findings emphasise the limited value of breeding and selecting crop-plants for resistance to disease, in that the attacking organisms are ever-evolving to produce new races and strains capable of infecting previously resistant selections. As another method of attack, therefore, the study of the use of fungicides to combat bean diseases was started.

(iii) Groundnuts

159. Variety Mani Pintar was again the highest yielder in the groundnut district variety trial. Under irrigation at Mubuku, however, it was superseded by the red Valencia, B. 1.

160. The trial to compare the effects of sprays of menazon, gamma BHC, and formothion on the groundnut aphid, the vector of rosette, and carried out at Kawanda, was completed. Both menazon and gamma BHC gave good control of aphid and had less rosette than the unsprayed controls but formothion was significantly worse than the control. At harvest the menazon plots outyielded all the others and had significantly more Grade I kernels.

(iv) Cotton

161. In Northern and Eastern Regions, mean lint yields of the district trials rose from 295 lb. in 1963, to 343 lb. Albar, re-named SATU (Serere Albar Type Uganda), was replacing BC 177 as the commercial variety of these regions except in Mbale and Busoga zones. Breeding work at Serere was mainly concentrated upon re-selection with Albar and related strains, with particular reference to black-seeded types. A hybridisation programme aimed at increasing boll size in Albar stocks reached the F 4 generation.

162. With the advent of group farms, some of the technical problems in cultivating and harvesting large acreage of cotton received attention, field scale trials of weed control by herbicides were initiated, and an area of cotton was harvested successfully by a stripper-picker after the crop had been chemically defoliated. The work, directed at the development of a "stormproof" variety adapted to mechanical harvesting, started in 1961, was continued.

163. The cotton-spraying trials of 1963 in northern Ankole were repeated in 1964 but they gave little or no increase in yield from the recommended four D.D.T. applications. The overall yield, however, was good and averaged 900 lb. total seed cotton per acre at Bigyera, 1,654 lb. at Kyambura and 1,237 lb. at Katera.

164. A country-wide survey of the Uganda cotton crop carried out in 1963 was accepted during the year for publication in the Empire Cotton Review. Amongst other findings the results showed that although very few farmers sprayed their cotton the recommended four times, they still obtained an estimated increase of 174 lb. total seed cotton per acre from an average of 2.33 sprays.

(i) Perennial Crops

(i) *Coffee (Arabica)*

165. Under the East African Breeding Scheme clones of eleven hybrids were received from Tanzania and established in a performance trial in Western Region. Also in Western Region, six trials of varieties having possible resistance to coffee berry diseases were planted. Clones of the international coffee leaf rust differentials were growing well under glass. Clones of selected Kawanda hybrids were for a combined bulking and evaluation trial.

PATHOLOGY

166. In support of the idea that leaf abscission is a factor which might be utilised in the establishment of tolerance to leaf rust, significant differences were found between varieties in the number of days taken for delaminated petioles to absciss. Laboratory methods were developed to isolate, by diffusion, the leaf factors (Hormones) controlling leaf fall, and their estimation using the bean abscission test. A start was made in comparing the hormone content of the varieties, and in determining hormone concentration change during a rust invasion of the leaf.

167. Spray trials to control rust continued and, at Bugusege, the 1963/64 crop was increased from 9.3 to 17.0 cwt. of clean coffee following the application of five sprays. The mean annual yield over three years was raised from 4.8 to 9.5 cwt.

168. In the 95 spray versus fertiliser trials on farmers' plots in Bugisu and Sebei, highly significant responses to spraying were obtained in north and south Bugisu and Manjiya showed yield increases which were not statistically significant. The 1963 coffee berry disease Kigezi trials gave good results, and no significant differences were obtained with respect to the volume of water used to apply 10 lb. of perenox to the acre. An average increase of 2 cwt. of clean coffee to the acre was obtained; accordingly motoblos have started applying 15-25 gallons per acre on infected farms.

ENTOMOLOGY

169. Trials in Bugisu showed that $\frac{3}{4}$ -pint of fenitrothion 50 per cent ml. per acre give as good a kill of antestia as does the standard two pints of malathion 50 per cent ml. Fenitrothion also showed itself superior in the control of lace-bug as it appears to have some ovicidal action.

170. The ground dusting trial comparing alfrin and dieldrin dusts for the control of coffee berry borer were assessed by examining the percentage of bored cherries in the ripe crop. The dieldrin treated plots had a lower percentage of damage but this difference was not significant.

171. Collections of the Uganda white stem borer showed that all stages of the pest were present throughout the year indicating that the timing of the standard dieldrin treatment to control adults and young larvae was not critical.

172. Liquoring reports from the taint trials sprayed in 1963 showed that lindane can taint the coffee produced but that fenitrothion and malathion do not. The Tropical Products Institute analysed samples of fenitrothion-sprayed coffee but found no residues of the insecticide present.

AGRONOMY

173. Yield data obtained over an eight-year period from a fertiliser trial at Bugusege have shown that small but profitable responses occur with rates of application of nitrogen up to 160 lb. per acre. It is thought that responses might have been limited by the absence of regular anti-leaf rust sprays. Future management of the trial was therefore expected to take this factor into account. Significant responses to Nitrogenous fertilisers on farmers' plots were also obtained at Ibanda in Ankole and in Sebei (Eastern Region). In the 75 trials in Bugisu, fertilisers did not appreciably increase yields, but this was thought to be primarily because the first applications were applied too late to affect yield by the end of 1964.

(ii) *Coffee (Robusta)*

174. The polycross seed harvested from the two Kawanda nurseries gave low germination, but enough seedlings were raised to plant a progeny trial. Seedlings of specific crosses were also raised. Prior to grubbing two of the original fields of breeding material, those trees which had not been previously tested but whose 12-14-year yield exceeded 100 per cent of the field mean, were propagated as clones for perpetuation.

PATHOLOGY

175. Red blister disease (R.B.D.) became severe in the main crop. A study of the 1961-63 trials showed that no residual effect of spraying is apparent in the year following a spraying schedule of copper fungicide. A survey of fertiliser trials indicated that the disease was aggravated on plots low in nitrogen. One way of combating the disease would be to replace badly attacked trees by vegetatively propagated material from resistant trees. It was proposed to work out a simple technique of vegetative propagation which the Uganda small coffee farmer could use himself.

ENTOMOLOGY

176. The results of a further trial on the control of fruitfly and coffee berry borer was written up and was accepted for publication in the East African Agricultural Journal. This trial showed that of the light insecticides tested only Endosulfan gave a significant reduction in the number of cherries containing living berry borer. None of the insecticides gave any control of fruit fly, and dieldrin and trichlorophon appeared to reduce the percentage of parasitism. Liquoring trials indicated that fruitfly had no effect on the quality of either wet or dry processed coffee and in particular they appeared to have no association with potato or green flavour in Uganda robustas.

AGRONOMY

177. Research programmes were directed towards finding cheap but effective methods of weed control. Observations showed that the contact herbicide paraquat is particularly effective when used on closely spaced or shaded coffee. During 1964, weed control costs using paraquat were Shs. 174 per acre, compared with an estimated cost of Shs. 696 per acre for six rounds of clean weeding using hand labour. These figures refer to shaded coffee spaced at 10 ft. x 10 ft. at Kawanda Research Station.

178. Fertiliser trials of the "minus one" type at Kawanda and Kituza showed that only nitrogenous fertilisers resulted in profitable yield responses, the optimum rate of application being about $1\frac{1}{2}$ lb. of Ammonium Sulphate Nitrate per tree per annum.

PHYSIOLOGY

179. A method of forecasting the national production of robusta coffee using bearing acreages and suitable function of the rainfall received at the time of the main flowering was in routine use.

(iii) Cocoa

BREEDING

180. Growth at all the variety trial sites (except one) was satisfactory and the most promising varieties appeared to be T12, T72, T73 and T85. In the hybridisation programme the seeds produced as a result of hand pollinations during the period November, 1963, to March, 1964, were planted in the nursery. In all, 103 progenies were produced using 16 Amelonado pollinators and 15 Upper Amazon mother trees.

PATHOLOGY

181. Cocoa wilt believed to be due to *verticillium dahliae* resulted in a number of deaths of the order of 50 per cent in the plantings under planted shade and the cocoa interplanted in robusta coffee. The disease was not so serious in forest plantings unless there was a break in the overhead shade

canopy. In all plantings the disease became particularly noticeable during the dry spell in July and August. *Verticillium dahliae* was abundant in the fan wood of infected trees but more careful examination was being used to confirm its presence in the roots.

ENTOMOLOGY

182. The insecticide menazon was shown to give excellent control of cocoa aphids deforming seedlings in nurseries.

PROCESSING

183. A prototype fermentary was completed in April, 1964, and was in operation from May to December. The fermentary processed 12.4 tons of dry cocoa and extensive records for research purposes during the course of its operation.

EXTENSION SERVICES

184. During 1964, a total of 361 acres of cocoa were planted and nursery sowings to provide 610 acres of seedlings were made.

PEST CONTROL

185. Monkeys caused considerable damage to trees and pods. During the latter months of the year a certain amount of shooting was successfully carried out at Namyoya and Mukono.

MARKETING

186. The Department of Agriculture purchased pods from farmers and when economically possible the pods were transported to Kituza Coffee Research Station for fermenting. The dry cocoa was subsequently transferred to Kawanda Research Station for storage.

(j) Pasture Agronomy

187. In the third year of the grass/legume fertiliser trials at Serere, estimated dry matter yields from pre-grazing samples ranged from just over 11,000 lb. per acre from pure grass to 23,000 lb. per acre from grass/legume with fertilisers. At this level, pasture yields were satisfactory by world standards for temporary leys. The added fertilisers favoured *Panicum maximum* and *Centrocema pubescens* while *Hyperphenia rufa* and *Stylosanthes glauca* dominated unfertilised swards.

188. In 1964 arrangements were made for all recommended grass/legumes seed mixtures to be issued by Messrs. Dalgety (East Africa) Ltd. This scheme, however, proved unsuccessful and was dropped at the end of the year.

189. At Kawanda the test-cropping of management trials of elephant grass, opened in 1963, continued. Trials 1-3 were planted to beans and cotton; trial 6 to maize and beans; in trial 9 individual blocks were planted according to the rotation: grass, cotton, groundnuts, maize and beans.

190. Studies on the stunting disease of elephant grass which assumed serious proportions at Kawanda continued.

191. Intensive studies on pasture legumes, interrupted in 1960, were resumed. These are of great value in increasing forage production as well as in gratuitously contributing nitrogen to the soil-plant-animal system.

192. The work at Serere, as in previous years, consisted of breeding and management studies for beef production from the East African Zebu, in a tick environment, off grass. The tick population was deliberately kept at a high level to ensure exposure to East Coast Fever and calf mortality, even with the resistant Zebu breed, was 23 per cent.

193. The breeding studies showed that on a weight for age basis, the small East African Zebu cattle showed a 30 per cent improvement on the mean of the last 18 years. Since however the environment, particularly the level of feeding from improved pastures, improved simultaneously with upgrading with selected bulls, it was not possible to attribute the above 30 per cent improvement to genetics alone but comparisons of home-bred and bought-in stock and statistical studies of contemporary progeny groups showed that breeding was producing genetically superior stock.

194. Studies of liveability and production in pure and cross-bred Boran cattle continued. Mortality was 75 per cent in pure Boran cattle in the tick environment, but this was reduced to 45 per cent by crossing with local cattle, and there were indications that certain lines may be as resistant as local types. On an individual animal basis, live weight gains of the Boran were again outstanding, with one bull attaining 850 lb. live weight at 30 months. Arrangements were made to introduce large-size Boer goats from Rhodesia for meat production.

195. Work continued on a number of large scale grazing trials to evaluate sward and management systems in terms of beef production. In the third year of the grass/legume fertiliser trial, live-weight gains ranged from 125 lb. per acre on pure grass with fertilisers, to 237 lb. per acre on grass/legume pastures and to 305 lb. per acre on fertilised grass/legume ones. The most economic return was however received from the grass/legume pasture with fertilisers. From palatability studies of various grasses and legumes, it appeared that grasses generally were more palatable in the early stages of growth and that legumes, particularly *Stylosanthes glauca*, became more palatable as they matured. This reinforced the previous impression that legumes in the sward are particularly important late in the growing period and during the dry season when quality is low in the grasses.

196. The twin experiment at Kawanda went on as usual and the first lactation results were completed. The general condition of the whole herd there was good. The costings farm staff unit completed five years' production and the profits achieved indicated that the system has a definite place on the peasant farm with restricted land.

IX. STAFF

197. In 1964 the rapid turnover of staff persisted and this was particularly so during the first nine months of the year. Many expatriate officers left the Department whilst many others, especially Assistant Agricultural Officers to work in the special development section, were recruited and a number were donated by various agencies abroad. During the course of the year 34 Uganda Agricultural Assistants returned from a Diploma Course in Israel and were promoted to Assistant Agricultural Officers and filled many vacant posts.

X. ACKNOWLEDGMENTS

198. It is a great pleasure to me to convey my heartfelt gratitude to the staff of the Agriculture Department who have tirelessly and devotedly worked for the welfare of agriculture in Uganda. They have endured many difficulties and have been confronted by frequent staff changes and shortages, and yet have pressed forward towards our goal of agricultural development and prosperity.

199. May I also extend my thanks to all Foreign Agencies and Governments who have so often come to our aid in the past, and it is my hope that their valuable assistance will again be available in the future.

200. I wish also to acknowledge the co-operation of all Departments of the Government and Kingdom and District Administrations in Uganda. The co-operation and encouragement shown by the Director of the Cotton Research Corporation Station at Namulonge and of both the Director of E.A.A.F.R.O. and the Dean of the Faculty of Agriculture, Makerere College, are deeply appreciated and will no doubt still be evident in the coming year, 1965.

J. S. LAKER,
Commissioner for Agriculture.

ENTEBBE,

12TH DECEMBER, 1966.

UGANDA RAINFALL: 1964

Station	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	TOTAL
ARI West Nile 3° 05' N.; 30° 55' E.	0.03 — 0.84	0.50 4 1.23	3.70 8 3.54	4.92 11 5.31	5.41 7 5.55	3.39 10 5.27	5.73 11 5.26	4.00 11 9.06	6.59 20 7.32	4.77 14 7.63	0.85 4 5.15	3.67 13 1.46	43.56 110 57.62
GULU Acholi 2° 45' N.; 32° 20' E.	0.10 1 0.54	1.49 8 1.71	2.74 7 3.52	7.32 16 6.91	6.43 15 7.86	8.85 14 5.85	5.09 12 6.53	10.17 18 9.08	13.27 25 6.88	5.21 15 6.53	1.57 5 3.88	1.75 9 1.86	63.99 145 61.22
LIRA (Ngetta) 2° 17' N.; 32° 56' E.	0.20 2 1.20	0.87 5 1.40	0.79 5 3.54	10.18 45 6.81	8.68 18 7.58	3.35 13 5.07	2.70 11 5.09	6.89 18 8.74	12.18 18 6.64	6.79 11 5.54	4.09 6 3.29	3.47 10 1.70	60.19 132 56.63
MOROTO Karamoja 2° 35' N.; 34° 36' E.	0.17 5 0.36	0.92 3 1.22	2.91 5 2.91	4.84 9 4.90	2.61 3 5.84	2.85 4 3.45	10.13 16 5.30	2.66 9 4.20	5.89 9 1.94	2.55 5 1.82	Nil 3 2.14	0.82 3 1.06	36.35 68 35.13
SERERE Ieso 1° 31' N.; 34° 11' E.	0.70 3 0.92	3.50 10 2.20	3.26 7 3.90	9.34 17 8.21	8.38 11 7.54	8.48 10 4.15	6.54 8 2.70	3.32 11 6.67	6.24 18 5.62	9.14 15 4.15	1.65 5 3.94	2.49 8 2.13	58.04 123 52.49
MBALE Mbale 1° 06' N.; 34° 10' E.	Nil — 1.04	3.28 10 1.99	6.25 11 3.72	9.02 15 6.49	5.84 18 6.63	6.71 17 4.80	4.52 11 4.56	3.36 12 5.32	7.39 12 4.26	5.65 14 3.29	0.74 6 2.56	1.49 10 1.75	54.25 136 46.42
TORORO Bukedi 0° 42' N.; 34° 10' E.	0.28 2 2.05	7.59 11 2.73	3.47 9 5.45	10.04 18 8.95	13.74 19 8.72	3.48 10 4.19	2.69 7 3.92	3.75 14 4.68	6.78 9 4.13	5.84 15 4.70	2.33 10 4.07	4.52 14 3.14	64.51 138 56.84
JINJA Busoga 0° 28' N.; 33° 11' E.	0.92 4 3.38	10.36 14 2.09	4.79 10 4.96	9.68 16 7.72	3.26 12 5.41	5.85 12 1.85	4.28 7 2.43	11.2 6 3.50	5.04 13 3.43	4.46 12 6.45	6.65 9 6.18	4.60 8 3.74	61.01 124 51.44
KABALE Kigezi 1° 15' S.; 29° 59' E.	2.6 6 2.45	4.37 16 3.54	3.26 8 4.47	5.28 20 6.07	0.73 6 3.71	0.99 10 1.06	2.39 6 0.76	11.50 6 2.16	3.84 11 3.74	4.98 16 3.80	4.53 13 4.28	4.14 14 3.60	38.30 126 39.03
MBARARA Ankole 0° 37' S.; 30° 39' E.	2.02 9 1.74	3.42 11 2.47	3.66 9 3.80	6.15 14 4.90	1.15 3 3.26	0.02 11 0.98	0.96 3 0.83	5.26 6 2.42	2.87 12 3.81	3.26 11 4.15	5.35 13 4.52	3.16 13 3.05	37.28 102 35.93
FORT PORTAL Toro 0° 40' N.; 30° 17' E.	0.23 3 1.39	2.04 10 2.89	9.45 18 5.19	5.93 18 7.41	2.22 1 5.80	2.68 11 3.20	2.02 5 2.36	5.78 17 4.58	5.74 14 7.47	13.02 23 8.49	6.14 16 6.53	5.91 16 3.14	61.16 162 58.41
BULINDI Bunyoro 1° 28' N.; 31° 28' E.	Nil — 1.48	2.11 6 2.34	3.82 6 4.33	10.41 12 6.93	2.27 7 5.19	2.00 7 3.46	4.21 7 3.45	6.78 9 6.20	7.62 17 6.42	13.56 16 5.39	3.77 16 4.44	5.57 12 2.26	62.12 115 51.89

COTTON PRODUCTION: 1963/64 SEASON

APPENDIX II (a)

REGION AND ZONE	ACREAGES*		SALES (Tons of Seed Cotton)		HARVESTED YIELD PER ACRE (lb. Seed Cotton)		PRODUCTION (Bales of Lint)	
	Total 1963/64	Mean 1958/59- 1962/63	Total 1963/64	Mean 1958/59- 1962/63	Averages 1963/64	Mean 1958/59- 1962/63	Total \$ 1963/64	Mean 1958/59- 1962/63
BUGANDA—								
Mengo ..	164,000	233,000	21,286	33,688	290	325	37,526	57,929
Masaka ..	27,000	33,000	1,721	2,648	145	182	3,319	4,601
Mubende ..	70,000	72,000	7,192	8,628	230	268	12,534	14,798
TOTALS ..	261,000	339,000	30,199	44,964	259	284	53,379	77,328
WESTERN—								
Bunyoro ..	57,000	55,000	6,562	5,404	256	218	11,335	9,237
Kazinga Channel ..	23,000	29,000	3,828	4,312	379	341	6,720	7,564
TOTALS ..	80,000	86,000	10,390	9,716	291	256	18,055	16,801
EASTERN—								
Busoga ..	510,000	431,000	45,842	51,814	201	267	81,309	90,283
Mbale ..	320,000	336,000	36,851	28,707	258	191	62,817	49,105
Teso ..	293,000	141,000	25,274	9,190	193	143	42,934	15,769
South Teso Segregated ..	38,000	36,000	4,935	3,792	294	240	8,250	6,283
Usuku ..	25,000	19,000	3,553	1,595	314	193	5,889	2,666
TOTALS ..	1,186,000†	964,000	116,455‡	95,095	220	220	201,199	164,105
NORTHERN—								
Lango ..	196,000	200,000	30,713	20,310	351	228	50,829	34,098
East Acholi ..	108,000	75,000	10,249	7,269	212	215	17,074	12,157
West Acholi ..	71,000	62,000	10,501	7,308	331	259	16,965	11,998
West Nile ..	112,000	69,000	12,025	9,955	241	322	21,785	17,992
TOTALS ..	487,000†	406,000	63,488‡	44,843	292	247	106,653	76,248
UGANDA TOTALS ..	2,014,000	1,794,000	220,532	194,617	245	242	379,286	334,484

* Corrected to 1,000 acres.

† These figures do not agree with the Regional totals shown in Appendices III (a), III (c) and III (e) due to the fact that the boundaries of the zones listed under Eastern and Northern Regions do not coincide with Regional boundaries. The differences are compensating and the Uganda total agrees with that in Table III (a).

‡ Similarly, these figures do not agree with the Regional totals in Table IV (a).

§ Excluding 129 bales from Research Stations.

COTTON PRODUCTION: 1964/65 SEASON

Monthly Plantings—Acres

REGION AND ZONE	March	April	May	June	July	August	September	Oct.	Total
BUGANDA—									
Mengo ..	—	174	9,346	64,219	72,857	37,309	5,054	—	188,959
Masaka ..	—	—	2,474	2,744	2,956	8,162	6,336	—	22,672
Mubende ..	—	—	1,693	12,539	8,646	39,306	18,852	—	81,036
TOTALS ..	—	174	13,513	79,502	84,459	84,777	30,242	—	292,667
WESTERN—									
Bunyoro ..	—	—	1,166	21,755	28,232	21,607	1,394	—	74,154
Kazinga Channel ..	—	—	—	10	591	4,349	11,519	3,876	20,345
TOTALS ..	—	—	1,166	21,765	28,823	25,956	12,913	3,876	94,499
EASTERN—									
Busoga ..	—	8,390	113,096	175,235	131,998	67,458	5,218	—	501,395
Mbale ..	13	8,534	78,541	138,002	125,995	57,155	6,510	—	414,750
Teso ..	32	33,093	84,321	95,485	49,547	29,608	138	—	292,224
South Teso Segregated ..	—	3,463	12,097	15,377	3,659	4,564	—	—	39,160
Usuku ..	—	4,053	9,732	10,129	3,790	182	—	—	27,886
TOTALS ..	45	57,533	297,787	434,228	314,989	158,967	11,866	—	1,275,415
NORTHERN—									
Lango ..	3	1,357	27,070	104,960	58,204	17,550	—	—	209,144
East Acholi ..	8	595	9,364	22,327	31,252	12,361	2,987	—	78,894
West Acholi ..	—	214	3,017	23,233	24,512	12,528	437	—	63,941
West Nile ..	—	481	4,151	41,704	48,095	27,924	1,222	—	123,577
TOTALS ..	11	2,647	43,602	192,224	162,063	70,363	4,646	—	475,556
UGANDA TOTALS ..	56	60,354	356,068	727,719	590,334	340,063	59,667	3,876	2,138,137

COTTON: MONTHLY PLANTINGS AS PERCENTAGES OF TOTAL APPENDIX II (c)

REGION AND ZONE	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
	1964/65	Mean 1959/60- 1963/64	1964/65	Mean 1959/60- 1963/64	1964/65	Mean 1959/60- 1963/64	1964/65	Mean 1959/60- 1963/64	1964/65	Mean 1959/60- 1963/64	1964/65	Mean 1959/60- 1963/64
BUGANDA—												
Mengo	1	—	4.9	3.8	34.0	29.0	38.6	38.0	19.7	25.8	2.7	3.4
Masaka	—	—	10.9	7.2	12.1	17.1	13.0	27.2	36.0	31.9	28.0	16.6
Mubende	—	—	2.1	2.3	15.5	20.4	10.7	42.2	48.5	31.9	23.2	3.2
TOTALS	1	—	4.6	3.8	27.2	25.9	28.8	37.9	29.0	27.8	10.3	4.6
WESTERN—												
Bunyoro	—	—	1.6	3.0	29.3	15.6	38.1	51.4	29.1	28.1	1.9	1.9
*Kazinga Channel	—	—	—	—	—	—	2.9	5.3	21.4	53.5	75.7†	41.2
TOTALS	—	—	1.2	2.0	23.0	10.5	30.5	36.4	27.5	36.4	17.8	14.7
EASTERN—												
Busoga	1.7	1.3	22.6	18.4	34.9	31.9	26.3	30.3	13.5	17.1	1.0	1.0
*Mbale	†2.1	2.2	18.9	15.6	33.3	30.7	30.4	30.4	13.8	19.2	1.5	1.9
*Teso	†11.3	8.7	28.9	35.6	32.7	29.5	17.0	19.9	10.1	6.3	—	—
South Teso Segregated	8.8	6.0	30.9	33.7	39.3	31.8	9.3	18.4	11.7	10.1	—	—
Usuku	14.5	11.3	34.9	51.2	36.3	29.5	13.6	7.8	7	2	—	—
TOTALS	4.5	3.2	23.3	21.6	34.0	31.0	24.7	27.7	12.5	15.3	1.0	1.2
NORTHERN—												
*Lango	†7	8	12.9	12.0	50.2	39.7	27.8	33.0	8.4	13.4	—	1.1
East Acholi	†8	2.8	11.9	14.2	28.3	31.6	39.6	34.4	15.7	15.7	3.7	1.3
*West Acholi	3	2	4.8	6.8	36.3	34.2	38.3	41.2	19.6	16.3	7	1.3
West Nile	4	—	3.4	1.5	33.7	23.8	38.9	44.5	22.6	25.3	1.0	4.9
TOTALS	6	1.0	9.2	9.6	40.4	34.3	34.1	36.7	14.8	16.5	.9	1.9
UGANDA TOTALS	2.8	2.0	16.7	14.8	34.0	30.0	27.6	32.0	15.9	18.7	3.0	2.5

* Due to the alteration in the boundaries during the 1963/64 season, the figures for these zones are not strictly comparable with the means.

† Includes March planting.

‡ Includes October planting.

COTTON PRODUCTION

Number of Bales of 400 lb., 1907-1964

(Note: All figures are corrected to 1,000 bales)

Season	Bales (Actual)	Bales (5-year average)	Season	Bales (Actual)	Bales (5-year average)
1907 ..	2,000	—	1936/37	332,000	325,000
1908 ..	4,000	—	1937/38	418,000	335,000
1909 ..	5,000	9,000	1938/39	307,000	344,000
1910 ..	12,000	13,000	1939/40	300,000	326,000
1911 ..	20,000	21,000	1940/41	365,000	264,000
1912/13	26,000	25,000	1941/42	238,000	241,000
1913/14	40,000	27,000	1942/43	112,000	236,000
1914/15	26,000	28,000	1943/44	191,000	208,000
1915/16	22,000	29,000	1944/45	272,000	207,000
1916/17	28,000	26,000	1945/46	227,000	218,000
1917/18	27,000	30,000	1946/47	231,000	258,000
1918/19	36,000	44,000	1947/48	170,000	272,000
1919/20	47,000	48,000	1948/49	391,000	295,000
1920/21	81,000	60,000	1949/50	339,000	325,000
1921/22	48,000	78,000	1950/51	346,000	355,000
1922/23	88,000	108,000	1951/52	380,000	357,000
1923/24	128,000	128,000	1952/53	320,000	349,000
1924/25	196,000	145,000	1953/54	398,000	352,000
1925/26	180,000	155,000	1954/55	300,000	351,000
1926/27	134,000	170,000	1955/56	364,000	357,000
1927/28	138,000	156,000	1956/57	372,000	358,000
1928/29	204,000	157,000	1957/58	351,000	370,000
1929/30	125,000	173,000	1958/59	401,000	371,000
1930/31	189,000	204,000	1959/60	360,000	333,000
1931/32	207,000	220,000	1960/61	370,000	334,000
1932/33	295,000	246,000	1961/62	181,000	330,000
1933/34	286,000	271,000	1962/63	359,000	—
1934/35	253,000	296,000	1963/64	379,000	—
1935/36	316,000	321,000			

CROP PRODUCTION

Estimated Acreages under Crops 1963 and 1964—African Cultivation

(Thousand Acres)

Crop	BUGANDA		EASTERN		NORTHERN		WESTERN		TOTAL	
	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964
Beans (Mixed and Cowpeas)	157.3	160.2	173.6	231.4	237.3	274.5	112.7	100.5	680.9	766.6
Beans (Soya) ..	..	2.5	..	..	..	..	..	..	..	2.5
Cassava ..	71.8	64.9	212.7	273.9	348.9	642.6	72.3	165.0	706.0	1,146.4
Cocoa ..	..	..	..	..	..	..	..	..	..	..
Coffee (Arabica)	1.6	1.6	24.5	24.5	1.5	2.4	14.6	16.1	42.2	44.6
Coffee (Robusta)	561.8	572.5	10.0	10.0	..	..	16.2	16.4	588.4	599.3
Cotton ..	281.4	292.7	1,188.7	1,277.9	484.0	473.0	80.1	94.5	2,014.2	2,138.1
Grams ..	..	..	..	..	..	..	..	..	..	..
Groundnuts ..	104.8	146.8	312.7	295.3	138.5	136.8	33.4	38.6	589.4	617.5
Maize ..	87.1	178.2	175.5	204.4	66.8	79.7	65.0	75.2	394.4	537.5
Millet (Sorghum)	82.1	79.1	263.1	306.5	188.3	201.3	198.1	202.5	731.6	789.4
Millet (Finger)	14.8	30.5	774.5	831.0	398.5	344.4	116.4	101.6	1,304.2	1,307.5
Millet (Bulrush)	..	..	2.5	2.6	..	..	..	..	2.5	2.6
Onions ..	..	..	..	..	..	..	2.6	2.1	2.6	2.1
Peas (Pigeon)	..	..	2.5	3.2	169.1	219.0	..	..	171.6	222.2
Peas (Field) ..	..	..	..	..	..	..	38.8	37.1	38.8	37.1
Plantains ..	555.1	616.3	542.9	580.7	19.3	70.6	645.5	748.9	1,742.8	2,016.5
Potatoes (Sweet)	119.3	133.5	161.7	261.1	172.2	130.8	132.6	164.9	585.8	690.3
Potatoes (Solanum)	..	..	..	..	..	..	5.7	10.9	6.0	10.9
Rice ..	..	..	1.5	1.8	1.8	2.4	..	..	3.4	4.9
Sim-sim ..	5.8	10.7	10.3	12.8	193.1	242.5	3.9	2.6	214.9	268.8
Tobacco (Fire-cured)	..	..	..	..	1.4	1.5	9.8	7.4	11.5	9.1
Tobacco (Flue-cured)	..	..	..	..	2.2	2.6	..	..	2.7	3.2
Tea† ..	..	..	..	..	..	..	1.6	2.3	2.8	2.6
TOTAL ..	2,005.7	2,291.9	3,861.1	4,324.6	2,425.5	2,825.7	1,550.2	1,788.4	9,844.6	11,230.6

* Under fifty acres.

† Revised acreage.

(All figures corrected to the nearest 100 acres).

CROP PRODUCTION
Estimated Acreages under Crops, 1963 and 1964—African Cultivation
BUGANDA REGION
(Thousand Acres)

CROP	MENGO		MASAKA		MUBENDE		TOTAL	
	1963	1964	1963	1964	1963	1964	1963	1964
Beans (Mixed)	94.6	101.9	49.0	40.4	13.7	17.9	157.3	160.2
Beans (Soya)	.2	1.6	.1	.9	—	—	.3	2.5
Cassava	62.2	51.5	4.4	8.0	5.2	5.4	71.8	64.9
Cocoa	.3	.6	*	*	—	—	.3	.6
Coffee (Arabica)	.6	.6	1.0	1.0	—	—	1.6	1.6
Coffee (Robusta)	368.0	372.5	171.1	171.1	22.7	28.9	561.8	572.5
Cotton	216.2	252.0	26.7	22.7	18.5	18.0	261.4	292.7
Grams	—	1.3	—	—	.7	—	.7	1.3
Groundnuts	74.2	96.8	18.7	30.5	11.9	19.5	104.8	146.8
Maize	63.3	106.0	17.5	64.6	6.3	7.6	87.1	178.2
Millet (Sorghum)	40.4	42.8	34.5	25.0	7.2	11.3	82.1	79.1
Millet (Finger)	10.2	23.7	.7	1.1	3.9	5.7	14.8	30.5
Plantains	319.9	350.5	183.8	236.7	31.4	29.1	535.1	616.3
Potatoes	97.9	93.9	9.7	23.3	11.7	16.3	119.3	133.5
Sim-sim	5.8	10.7	—	—	—	—	5.8	10.7
Tobacco (Fire-cured)	—	—	—	—	.3	.2	.3	.2
Tea†	.2	0.3	*	*	*	*	.2	.3
TOTAL	1,353.8	1,506.7	517.8	625.3	134.1	159.9	2,005.7	2,291.9

* Under fifty acres.

† Revised.

(All figures corrected to the nearest 100 acres).

CROP PRODUCTION

Estimated Acreages under Crops, 1963 and 1964—African Cultivation

EASTERN REGION

(Thousand Acres)

CROP	BUSOGA		BUREDI		BUGISU		TESO		KARAMOJA		TOTAL	
	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964	1963	1964
Beans (Mixed and Cowpeas)	?	43.2	33.6	32.6	46.6	55.0	93.0	100.2	.4	.4	173.6	231.4
Cassava	41.9	43.9	70.6	65.4	18.9	29.3	81.3	135.3†	—	—	212.7	273.9
Cocoa	*	*	—	—	—	—	—	—	—	—	*	*
Coffee (Arabica)	—	—	—	—	24.5	24.5	—	—	—	—	24.5	24.5
Coffee (Robusta)	10.0	10.0	—	—	—	—	—	—	—	—	10.0	10.0
Cotton	510.0	501.4	253.0	337.0	67.4	77.4	355.5	359.2	2.8	2.9	1,188.7	1,277.9
Grams	—	—	—	—	—	—	4.1	7.5	—	—	4.1	7.5
Groundnuts	100.8	132.9	66.6	57.5	14.0	8.0	130.2	95.7	1.1	1.2	312.7	295.3
Maize	61.2	74.8	22.7	34.1	69.4	82.4	10.9	8.2	5.3	4.9	175.5	204.4
Millet (Sorghum)	2.3	4.9	26.2	29.3	11.0	18.6	118.6	147.7	105.0	106.0	263.1	306.5
Millet (Finger)	136.6	156.4	178.2	234.9	76.5	75.9	381.2	361.8	2.0	2.0	774.5	831.0
Millet (Bulrush)	—	—	—	—	—	—	—	—	2.5	2.6	2.5	2.6
Peas (Pigeon)	—	—	—	—	—	—	2.2	2.9	3	3	2.5	3.2
Plantains	222.6	223.6	43.0	36.7	276.1	318.0	1.1	2.3	1	1	542.9	580.7
Potatoes (Sweet)	50.9	63.5	27.8	49.0	14.4	37.9	68.1	110.0	.5	.7	161.7	261.1
Potatoes (Solanum)	—	—	—	3	—	—	—	—	—	—	—	—
Rice	—	—	1.1	1.3	—	—	.4	.5	—	—	1.5	1.8
Sim-sim	—	3.0	.8	1.5	—	—	9.3	8.1	.2	.2	10.3	12.8
TOTAL	1,142.3	1,257.6	723.6	879.3	619.1	727.0	1,255.9	1,339.4	120.2	121.3	3,861.1	4,324.6

* Under fifty acres.

† Revised acreage.

(All figures corrected to the nearest 100 acres).

CROP PRODUCTION

APPENDIX III (d)

Estimated Acreages under Crops, 1963 and 1964—African Cultivation

WESTERN REGION

(Thousand Acres)

CROP	ANKOLE		BUNYORO		KIGEZI		TORO		TOTAL	
	1963	1964	1963	1964	1963	1964	1963	1964†	1963	1964
Beans (Mixed and Cowpeas)	23.8	23.6	13.5	18.7	46.4	46.9	29.0	11.3	112.7	100.5
Beans (Soya)	—	—	—	—	—	—	.2	—	.2	—
Cassava	10.7	11.7	21.0	29.4	3.6	3.8	37.0	120.1†	72.3	165.0
Cocoa	—	—	.1	.1	—	—	*	.1	.1	.2
Coffee (Arabica)	4.9	5.6	.4	.4	3.7	4.4	5.6	5.7	14.6	16.1
Coffee (Robusta)	7.5	7.5	2.1	2.1	1.4	1.4	5.2	5.4	16.2	16.4
Cotton	.6	1.3	57.5	74.2	*	.2	22.0	18.8	80.1	94.5
Grams	—	—	—	—	—	—	—	—	—	—
Groundnuts	11.7	15.6	6.9	7.4	8.9	8.9	5.9	6.7	33.4	38.6
Maize	6.5	5.6	10.7	13.9	25.2	26.1	22.6	29.6	65.0	75.2
Millet (Sorghum)	16.6	14.8	4.4	4.3	166.1	178.1	11.0	5.3	198.1	202.5
Millet (Finger)	53.2	35.1	9.8	13.2	36.5	36.6	16.9	16.7	116.4	101.6
Onions	.8	.6	.2	.2	.3	.3	1.3	1.0	2.6	2.1
Peas (Field)	5.9	6.8	—	.2	29.3	29.5	3.6	.6	38.8	37.1
Peas (Pigeon)	—	—	—	—	—	—	—	.1	—	.1
Plantains	390.6	391.8	34.1	119.7†	117.7	123.6	103.1	113.8	645.5	748.9
Potatoes (Sweet)	27.6	29.2	13.5	16.4	78.9	79.2	12.6	40.1	132.6	164.9
Potatoes (Solanum)	.4	4.8	.1	.8	4.8	5.0	.4	.3	5.7	10.9
Rice	—	—	—	—	—	—	.1	.7	.1	.7
Sim-sim	*	—	2.6	2.8	—	—	1.3	—	3.9	2.8
Tobacco (Fire-cured)	—	—	6.5	6.7	.7	.7	2.6	—	9.8	7.4
Tobacco (Flue-cured)	—	—	—	—	.5	.6	—	—	.5	.6
Tea	.2	.3	*	*	.2	.3	1.2	1.7	1.6	2.3
TOTAL	561.0	554.3	183.4	310.5	524.2	545.6	281.6	378.0	1,550.2	1,788.4

* Under fifty acres.

† Revised acreage.

‡ Acreages of food crops from the disturbed counties of Bwamba, Busongora and Bukonjo have not been included owing to unavailability of chiefs planting returns.

(All figures corrected to nearest 100 acres).

CROP PRODUCTION
Estimated Acreages under Crops, 1963 and 1964—African Cultivation
 NORTHERN REGION
(Thousand Acres)

CROP	LANGO		ACHOLI		WEST NILE/MADI		TOTAL	
	1963	1964	1963	1964	1963	1964	1963	1964
Beans (Mixed and Cowpeas) ..	96.3	159.3	55.4	64.9	85.6	50.3	237.3	274.5
Cassava ..	63.7	136.5†	47.5	95.7†	237.7	410.4†	348.9	642.6
Coffee (Arabica) ..	—	—	—	—	1.5	2.4	1.5	2.4
Coffee (Robusta) ..	—	—	—	—	.4	.4	.4	.4
Cotton ..	196.0	209.1	176.0	140.3	112.0	123.6	484.0	473.0
Grams ..	*	—	—	—	2.2	1.2	2.2	1.2
Groundnuts ..	40.7	49.1	54.1	65.6	43.7	22.1	138.5	136.8
Maize ..	19.1	25.5	24.5	16.0	23.2	38.2	66.8	79.7
Millet (Sorghum) ..	107.1	110.8	63.5	44.3	17.7	46.2	188.3	201.3
Millet (Finger) ..	167.2	179.2	153.3	104.1	78.0	61.1	398.5	344.4
Millet (Bulrush) ..	—	—	—	—	—	—	—	—
Peas (Pigeon) ..	136.4	174.4	25.9	38.0	6.8	6.6	169.1	219.0
Plantains ..	5.9	14.0†	5.0	7.3	8.4	49.3†	19.3	70.6
Potatoes (Sweet) ..	62.7	42.5	48.8	56.7	60.7	31.6	172.2	130.8
Rice ..	1.3	1.4	0.1	—	.4	1.0	1.8	2.4
Sim-sim ..	67.0	89.1	90.7	99.2	35.4	54.2	193.1	242.5
Tobacco (Fire-cured) ..	—	—	—	—	1.4	1.5	1.4	1.5
Tobacco (Flue-cured) ..	*	*	0.6	0.5	1.6	2.1	2.2	2.6
TOTAL ..	963.4	1,190.9	745.4	732.6	716.7	902.2	2,425.5	2,825.7

* Under fifty acres.

† Revised.

(All figures corrected to the nearest 100 acres).

CROP PRODUCTION
Quantities Marketed and Estimated Value
(Values Based on Prices Paid to Growers)

REGION/DISTRICT	ROBUSTA COFFEE†		ARABICA COFFEE†		ALL COFFEE†	SEED COTTON (1963/64 SEASON)	
	Quantity Clean	Value	Quantity Clean	Value	Value	Quantity	Value
	Equivalent Tons	£	Equivalent Tons	£	£	Tons	£
<i>Eastern—</i>							
Busoga	2,128	194,976	—	—	194,976	45,842	2,454,160
Bugisu/Sebei	—	—	5,113	1,127,972	1,127,972	7,755	413,310
Bukedi	22	2,722	—	—	2,722	29,086	1,549,160
Teso	—	—	—	—	—	33,751	1,812,120
Karamoja	—	—	—	—	—	206	11,340
TOTAL ..	—	—	—	—	1,325,670	116,640	6,240,110
<i>Northern—</i>							
Lango	—	—	—	—	—	30,713	1,692,310
Acholi	—	—	—	—	—	20,566	1,128,800
West Nile/Madi	33	2,614	215	65,551	68,165	12,025	651,750
TOTAL ..	33	2,614	215	65,551	68,165	63,304	3,472,870
<i>Western—</i>							
Bunyoro	418	49,827	57	10,474	60,301	6,562	355,330
Toro	828	88,317	87	8,804	97,121	3,653	202,760
Kigezi	584	68,421	282	54,230	122,651	7	370
Ankole	2,831	277,577	952	172,421	449,998	169	8,850
TOTAL ..	4,661	484,142	1,378	245,929	730,071	10,390	567,320
<i>Buganda—</i>							
Mengo }	164,538	18,490,118	2,046	337,138	18,827,256	26,573	1,467,110
Masaka }						1,721	90,910
Mubende }						1,905	102,510
TOTAL ..	164,538	18,490,118	2,046	337,138	18,827,256	30,199	1,660,530
UGANDA TOTAL ..	171,382	19,174,572	8,752	1,776,590	20,951,162	220,533	11,940,850

NOTE.—Crops included in this table are those for which quantities marketed and values are known. Considerable quantities are marketed, are not included as reliable estimation of sales and value are not available. All figures given to nearest long ton.

*Where growers process their own coffee to an intermediate or final form, the value of such production is included in this table.

†Production of coffee formerly shown as estate production is now included in this table.

APPENDIX IV

ues, 1964

wers)*

TOBACCO: FLUE-CURED (Cured-Leaf)		TOBACCO: FLUE-CURED (Green-Leaf)		TOBACCO: FIRE-CURED (Cured-Leaf)		ALL TOBACCO	TOTAL VALUE	
Quantity	Value	Quantity	Value	Quantity	Value	Value	1963	1964
Tons	£	Tons	£	Tons	£	£	£	£
—	—	—	—	—	—	—	3,280,729	2,649,141
—	—	—	—	—	—	—	2,016,585	1,541,287
—	—	—	—	—	—	—	949,985	1,551,889
—	—	—	—	—	—	—	2,003,351	1,812,120
—	—	—	—	—	—	—	10,588	11,347
—	—	—	—	—	—	—	8,331,248	7,565,784
1	434	—	—	—	—	434	1,410,741	1,692,750
119	35,184	—	—	—	—	35,184	1,062,083	1,163,991
866	279,053	—	—	635	73,397	352,450	926,924	1,072,367
986	314,671	—	—	635	73,397	388,068	3,399,748	3,929,108
—	—	—	—	1,583	177,439	177,439	638,333	593,075
—	—	—	—	—	—	—	494,398	299,883
—	—	480	13,568	—	—	13,568	130,264	136,593
—	—	—	—	—	—	—	70,262	458,851
—	—	480	13,568	1,583	177,439	191,007	1,933,257	1,488,402
—	—	—	—	77	5,498	5,498	17,888,904	20,493,293
—	—	—	—	77	5,498	5,498	17,888,904	20,493,293
986	314,671	480	13,568	2,295	256,334	584,573	31,553,157	33,476,587

with reasonable accuracy. Crops such as maize, groundnuts, of which
ble.

essing is included in the price paid.

OVERSEAS EXPORTS OF AGRICULTURAL PRODUCE, 1963-1964

APPENDIX V (a)

ARTICLE	UNIT	QUANTITIES			VALUE IN £		
		1962	1963	1964	1962	1963	1964
<i>Oilseed and Products:—</i>							
Castor Seed	Tons	2,581	2,505	1,967	112,941	103,653	88,471
Groundnuts	Tons	7,247	3,500	3,804	345,066	184,208	223,273
Sesame Seed	Tons	1,110	898	917	79,994	60,738	59,425
Sunflower Seed	Tons	20	87	108	933	3,658	4,499
Cotton Seed Cake	Tons	28,622	67,518	61,834	681,158	1,512,398	1,535,661
Cotton Seed Oil	Tons	54	862	1,560	7,211	88,354	164,460
Groundnut Oil	Tons	39	2	—	5,520	200	—
Other Vegetable Oils	Tons	3	7	41	410	928	3,545
Other Oilseed Cake, Meals and other Vegetable Oil Residues	Tons	6,487	1,842	590	175,448	52,637	18,712
<i>Fibres:—</i>							
Cotton, raw	Tons	32,233	58,790	63,485	8,259,722	14,329,593	15,856,857
Sisal	Tons	454	343	274	36,402	44,229	29,465
<i>Beverage Crops and Tobacco:—</i>							
Coffee, not roasted	Tons	130,944	145,219	137,455	20,173,957	27,181,325	35,378,156
Tea	Tons	5,182	5,405	5,992	1,996,980	2,040,672	2,211,596
Unmanufactured Tobacco	Tons	*	4	28	23	1,016	5,352
Manufactured Tobacco	Lb.	—	—	4,912	—	—	2,255
<i>Spices and Drugs:—</i>							
Chillies	Tons	526	426	382	91,643	51,344	43,595
Papain	Tons	7	56	190	16,042	113,563	356,334
Vanilla	Tons	1	1	2	4,925	4,444	8,462
<i>Beans and Pulses:—</i>							
Soya Beans	Tons	13	65	297	381	2,110	8,596
Others	Tons	550	1,502	771	18,788	41,940	27,543
<i>Cereals:—</i>							
Maize (unmilled)	Tons	4,323	4,154	1,064	66,652	80,680	24,922
Maize-meal	Tons	5,637	4,056	1,860	100,376	68,194	33,162
Others (unmilled)	Tons	405	—	811	12,330	—	25,223
<i>Miscellaneous:—</i>							
Rubber	Tons	3	—	—	315	—	—
Ethyl Alcohol	Imp. Gal.	3,825	4,168	2,775	1,316	1,426	947
Sugar	Tons	11	5,030	3,098	679	291,656	194,414
		TOTAL			32,189,212	46,258,966	56,304,925

Source: East African Customs and Excise Annual Trade Reports, 1962, 1963 and 1964.

* Under ½ ton.

EXPORTS OF AGRICULTURAL PRODUCE TO KENYA AND TANZANIA, 1964

ARTICLE	UNIT	QUANTITIES			VALUE IN £		
		To Kenya	To Tanzania	Total	To Kenya	To Tanzania	Total
<i>Oilseeds and Products:—</i>							
Cotton Seed Cake ..	Tons	902	—	902	14,182	—	14,182
Other Oilseed Cakes, Meals and other Vegetable Oil Residues ..	Tons	1,021	*	1,021	30,861	98	30,959
Sesame Seed ..	Tons	1	*	1	69	18	87
Groundnuts ..	Tons	15	163	178	809	9,797	10,606
Cotton Seed Oil ..	Tons	68,047	832	68,879	740,626	94,272	834,898
Groundnut Oil ..	Tons	108	27	135	11,645	3,138	14,783
Other Vegetable Oil ..	Tons	3	1	4	604	108	712
<i>Beverage Crops and Tobacco:—</i>							
Coffee, not roasted ..	Tons	137	—	137	25,200	—	25,200
Tea ..	Tons	148	9	157	43,800	2,915	46,715
Unmanufactured Tobacco ..	Lb.	2,580,800	2,116,009	4,696,809	475,617	230,281	705,898
Cigars, Cheroots and Manufactured Tobacco ..	Lb.	860,508	319,075	1,179,583	517,468	192,221	709,689
<i>Spices:—</i>							
Chillies ..	Tons	10	*	10	877	62	939
Others ..	Tons	141	77	218	22,230	7,537	29,767
<i>Fibres:—</i>							
Cotton Linters ..	Tons	10	1	11	826	60	886
Cotton waste, not carded or combed ..	Tons	115	51	166	11,875	3,401	15,276
Sisal ..	Tons	—	—	—	—	—	—
<i>Cereals:—</i>							
Maize (unmilled) ..	Tons	4,519	*	4,519	81,332	13	81,345
Millet ..	Tons	1,538	1,553	3,091	40,275	42,306	82,581
Maize germ meal ..	Tons	—	235	235	—	3,573	3,573
Others ..	Tons	1,411	—	1,411	20,167	—	20,167
<i>Pulses:—</i>							
Beans, Peas and Lentils ..	Tons	1,822	517	2,339	53,209	14,926	68,135
<i>Miscellaneous:—</i>							
Rubber ..	Tons	9	—	0	1,564	—	1,564
Ethyl Alcohol ..	Imp. Gal.	32,088	27,061	59,149	8,788	6,728	15,516
Sugar ..	Tons	42,905	413	3,318	1,960,329	18,623	1,978,952
Jaggery ..	Tons	9	*	9	369	19	388
Molasses ..	Tons	442	—	442	1,073	—	1,073
TOTAL £					4,063,795	630,096	4,693,891

Source: East African Customs and Excise Annual Trade Report, 1964.

* Under $\frac{1}{2}$ ton.

CROP PRODUCTION, UGANDA

Plantation Crop Production, 1963 and 1964

CROP	PRODUCTION UNIT	ESTIMATED ACREAGES		ESTIMATED PRODUCTION			
				Quantity		Value	
		1963	1964	1963	1964	1963	1964
SUGAR	Estates ..	38,460	44,323	(Tons) 122,044	(Tons) 123,551	£ 5,451,481	£ 5,379,369
	Outgrowers ..	4,880	2,264				
TEA ..	Estates ..	22,494	23,710†	6,072	7,495	2,292,484	2,787,000
	Outgrowers ..	1,785	2,668				
SISAL	Estates ..	2,500	2,500	365	320	40,000	32,000
COCOA	Estates ..	146	146	*	12	—	2,232
	Smallholdings	409	772				

*Production not started.

†Based on recent trend. Final acreage returns not available at time of going to Press.

PRICES PAID TO FARMERS—1964

Cents per lb.

Produce	Centres	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
*BEANS ..	Kampala ..	20	20	22	26	22	23	24	31	26	26	30	26
	Iganga ..	20	20	20	20	20	20	20	25	21	24	24	25
	Soroti ..	22½	23	23	25	25	25	25	30	27	24	26	27
	Fort Portal	20	20	22	23	25	23	20	27	23	22	25	30
DRIED CASSAVA ..	Kampala ..	15	12	11	12	12	12	10	11	14	12	13	14
	Iganga ..	9	10	8	8	8	8	8	8	10	8	8	9
	Soroti ..	15	13	11	12	15	12	12	10	13	12	13	13
	Fort Portal	—	—	—	—	—	—	—	—	30	—	20	—
*SHELLED GROUNDNUTS	Kampala ..	51	54	56	56	68	45	44	46	48	55	55	60
	Iganga ..	50	55	54	50	50	40	47	45	45	45	45	45
	Soroti ..	53	55	54	54	60	60	50	50	50	45	55	60
	Fort Portal	50	50	55	55	70	65	—	—	55	45	55	69
*UNSHELLED GROUNDNUTS ..	Kampala ..	31	32	33	32	35	22	26	27	28	30	33	36
	Iganga ..	30	35	30	27	25	20	23	26	25	25	26	26
	Soroti ..	32	33	30	32	33	25	25	25	28	27	35	35
	Fort Portal	—	—	20	—	—	—	—	47	20	34	—	25
MAIZE ..	Kampala ..	21	17	16	18	20	21	17½	12½	16	14	15	15½
	Iganga ..	15	14	14	16	15	17	12	10	13	12	14	15
	Soroti ..	22	19	20	18	22	22	21	15	15	15	18	18
	Fort Portal	20	15	10	15	15	16	15	13	13	12	16	14
*SORGHUM ..	Kampala ..	17	15	15	15	15	15	15	15	15	15	20	20
	Iganga ..	17	15	15	15	15	15	—	—	15	—	—	—
	Soroti ..	—	16	15	15	15	15	—	—	15	—	15	15
	Fort Portal	—	—	—	—	—	—	—	—	—	—	—	—
*FINGER MILLET ..	Kampala ..	26	24	23	26	28	21	21	23	27	27	27	27
	Iganga ..	22	20	25	25	20	20	20	20	24	24	24	26
	Soroti ..	24	28	28	28	33	22	22	20	24	30	27	28
	Fort Portal	20	20	18	20	22	20	18	20	25	25	20	—

POPULATION AND AVAILABILITY OF LAND

APPENDIX VIII

Region/District	Total area	Area of land excluding open water, swamps and reserved forests	Cultivated area	Population*	Population Density	Cultivated land per head of population	Estimated available land per head of population	Ratio of available land to cultivated land
	<i>Sq. miles</i>	<i>Sq. miles</i>	<i>1,000 acres</i>		<i>Per sq. mile</i>	<i>Acres</i>	<i>Acres</i>	
<i>Buganda</i> —								
Mengo ..	14,417	9,221	1,199	1,499,000	163	0·8	4·1	4·9
Masaka ..	7,978	3,649	485	501,000	137	1·0	4·7	4·8
Mubende ..	2,701	2,570	185	107,000	42	1·7	15·4	8·9
TOTALS ..	25,096	15,440	1,869	2,107,000	136	0·9	4·7	5·3
<i>Eastern</i> —								
Busoga ..	6,940	3,133	994	736,000	234	1·4	2·7	2·7
Bugisu, Sebei and Mbale Township ..	1,677	1,170	630	402,000	344	1·6	1·9	1·2
Bukedi ..	1,786	1,533	784	431,000	281	1·8	2·3	1·3
Teso ..	4,954	4,249	943	475,000	112	2·0	5·7	2·9
Karamoja ..	9,230	8,094	125	194,000	24	0·6	26·7	41·4
TOTALS ..	24,587	18,179	3,476	2,238,000	123	1·6	5·2	3·3
<i>Northern</i> —								
Acholi ..	10,854	10,347	580	319,000	31	1·8	20·8	11·4
Lango ..	5,054	4,333	920	395,000	91	2·3	7·0	3·0
West Nile/Madi ..	6,051	5,252	788	481,000	92	1·6	7·0	4·3
TOTALS ..	21,959	19,932	2,288	1,195,000	60	1·9	10·7	5·6
<i>Western</i> —								
Bunyoro ..	5,935	4,025	230	134,000	33	1·7	19·2	11·2
Toro ..	5,233	3,920	350	391,000	100	0·9	6·4	7·2
Ankole ..	6,276	5,378	553	592,000	110	0·9	5·8	6·2
Kigezi ..	2,039	1,689	546	538,000	319	1·0	2·0	2·0
TOTALS ..	19,483	15,012	1,679	1,655,000	110	1·0	5·8	5·7
UGANDA TOTALS	91,125	68,563	9,312	7,195,000	105	1·3	6·1	4·7

* Estimates for January, 1964, based on 1959 Census of Population and inter-censal rates of growth. This calculation does not take into account internal migration between districts. Figures are given to the nearest thousand.

PRINCIPAL AGRICULTURAL LEGISLATION

Subject	Act	Statutory Instrument	Title	Object
Coffee	2 —	— 76	Bugisu Coffee (Amendment) Act .. Bugisu Coffee (Certificates of Origin) Rules	An Act to amend the Bugisu Coffee Ordinance, 1962. To provide for all consignments of Bugisu Coffee for export to be covered by certificates of origin.
	—	75	Coffee (Certificates of Origin) (Amendment) Rules	To amend the Coffee (certificates of origin) Rules, 1963.
	—	31	Coffee (Control of Export of Wet-processed Coffee) Rules ..	Rules to ensure orderly consignment, packing, marking and certification of wet-processed coffee. To establish the limits of the Cotton Zones. To vary the co-operative ginning percentages.
Cotton	— —	18, 138 256	Cotton Zones (Variation) Notice .. Specified Percentage (Variation) Order	

DEPARTMENT OF AGRICULTURE
DISPOSITION OF STAFF AS AT 31st DECEMBER, 1964

1. EXTENSION

<i>Title</i>	<i>Name</i>	<i>Station</i>
<i>Commissioner for Agriculture</i> ..	W. N. Rose ..	Entebbe.
<i>Deputy Commissioner for Agriculture</i>	J. S. Laker ..	Entebbe.
<i>Deputy Commissioner for Agriculture (O/C new crops)</i> ..	D. J. Parsons, M.C. ..	Entebbe.
<i>Assistant Commissioners for Agriculture</i>	H. R. Berunga, M.B.E. ..	Entebbe.
	G. W. R. Onaba ..	Entebbe.
<i>Senior Agricultural Officers</i> ..	P. F. Kunya ..	Entebbe.
	G. L. Kiggundu, M.B.E. ..	Buganda.
	E. O. Odeke ..	Eastern Region.
	P. M. Sali ..	Western Region.
	S. M. N. Kijambu ..	Northern Region.
<i>Agricultural Officers</i>	S. B. M. Mutagwanya ..	Mpigi
	E. F. Bajunirwe ..	Mukono.
	B. L. Kiwuwa ..	Masaka.
	J. M. Stainburn ..	Eastern Region.
	R. Morgans ..	Eastern Region.
	F. K. Bakwega ..	Busoga.
	F. J. Luswata ..	Bukedi.
	P. E. K. Sibyetekerwa ..	Bugisu.
	M. M. Mwawule ..	Bugisu.
	D. M. Pudsey ..	Western Region.
	K. L. M. Mathews ..	Western Region.
	J. K. Kabigabwa ..	Bunyoro.
	W. A. Kneale ..	Bunyoro.
	J. C. Ssozi ..	Ankole.
	E. R. Kanyari ..	Kigezi.
	V. Kirabokyamaria ..	Acholi
	T. K. Otim ..	Lango.
	F. A. Ojacor ..	West Nile.
	F. X. Lubega ..	Kasese.
<i>Principal Assistant Agricultural Officers</i>	Y. B. Walukamba ..	Sebei.
	Y. E. Onaba ..	Teso.
<i>Senior Assistant Agricultural Officer</i>	S. L. Takirambudde ..	Buganda.
<i>Senior Field Officers</i>	S. B. Kikule ..	Mityana/Mubende.
	H. G. N. Semambo ..	Mukono.
	P. Sempa ..	Mukono District Farm Institute.
	J. M. Sekimpi ..	Bowa.
	J. M. Luzinda ..	Masaka.
	A. L. Stephens, M.B.E. ..	Teso.
	J. G. Wilson ..	Karamoja.
	J. B. O. Baguma ..	Toro.
	Major T. F. Ellis ..	Ankole.

1. EXTENSION—continued

<i>Title</i>	<i>Name</i>	<i>Station</i>
<i>Assistant Agricultural Officers</i> ..	B. M. Kawubei	Entebbe.
	J. C. C. Isoba	Entebbe.
	D. S. Bulera	Mpigi.
	Y. Yiga	Mpigi.
	G. A. Rea	Mpigi.
	T. R. Morgan	Mityana/Mubende.
	D. E. Kawalya	Mityana/Mubende.
	G. W. Ssemutike	Mityana/Mubende.
	J. B. Seguya	Mityana/Mubende.
	B. J. R. Handscombe	Mityana/Mubende.
	L. Sebuwugu	Mukono.
	F. X. Luyombya	Mukono.
	C. Lukwago	Mukono.
	A. P. Macphie	West Nile.
	J. Bitonder-Ubusa	West Nile.
	T. Opio	West Nile.
	J. E. Abamile	West Nile.
	G. M. Rose	West Nile District Farm Institute.

2. MECHANICAL AGRICULTURAL DEVELOPMENT SCHEMES

<i>Chief Agricultural Development Officer</i>	P. Evans Jones	Namalere.
<i>Senior Agricultural Engineer</i> ..	D. Innes	Namalere.
<i>Agricultural Engineer</i>	W. T. Brown	Namalere.
<i>Mechanical Cultivation Officers</i> ..	E. W. Kalanzi	Namalere.
	N. B. Miller	Buganda.
	G. K. Petrie	Eastern Region.
	J. L. McCumiskey	Western Region.
	J. Cochrane	Northern Region.
<i>Agricultural Officers</i>	J. B. Brown	Namalere.
	C. Baryomunsi	Western Region.
<i>Senior Assistant Agricultural Officer</i>	K. M. I. Popiel, M.B.E.	Namalere.
<i>Senior Executive Officer</i> ..	A. I. Gafabusa	Namalere.
<i>Technical Stores Controller</i> ..	D. B. Edwards	Namalere.
<i>Staff Surveyor</i>	A. Wagner	Namalere.
<i>Assistant Agricultural Officers and Field Officers</i>	A. L. Bailey	Namalere.
	D. L. Jackson	Namalere.
	E. J. Haywood	Namalere.
	A. Donaldson	Namalere.
	A. D. Smith	Buganda.
	J. L. Walker	Buganda.
	R. M. Batterbee	Buganda.
	M. M. Wright	Buganda.
	C. J. Lee	Buganda.
	R. L. Lawrence	Buganda.
	S. H. C. Foye	Eastern Region.
	J. M. Edwards	Eastern Region.

2. MECHANICAL AGRICULTURAL DEVELOPMENT SCHEMES—continued

<i>Title</i>	<i>Name</i>	<i>Station</i>
<i>Assistant Agricultural Officers and Field Officers—continued</i> ..	F. S. Hawksworth	Eastern Region.
	J. A. Cullen	Eastern Region.
	G. C. R. Evans	Eastern Region.
	M. D. McLeod	Eastern Region.
	A. M. P. Julnes	Eastern Region.
	D. C. Davies	Eastern Region.
	I. R. Scard	Eastern Region.
	T. D. Woodroffe	Western Region.
	R. A. Fox	Western Region.
	N. F. S. Hetherington	Western Region.
	R. D. Turner	Western Region.
	G. Majerus	Western Region.
	J. E. Mathers	Western Region.
	F. A. Cleal	Western Region.
	J. M. Edwards	Western Region.
	V. J. Chantler	Western Region.
	F. Blenkhorn	Western Region.
	N. Oldacre	Northern Region.
	A. Donaldson	Northern Region.
	J. Fuller	Northern Region.
	R. W. R. Davies	Northern Region.
	D. A. G. Waymark	Northern Region.
	R. F. Leonard	Northern Region.
	F. Pitkin	Northern Region.
	L. A. Jarvis	Northern Region.
	P. M. Handley	Northern Region.
<i>Assistant Agricultural Officers</i> ..	C. M. Kapalaga	Bowa.
	A. K. Mulera	Masaka.
	D. T. Seldenrath	Masaka District Farm Institute.
	B. N. Wanyama	Busoga.
	J. N. Kimoimo	Busoga.
	N. P. K. Wamunya	Busoga.
	W. M. K. Permain	Busoga.
	P. W. Taylor	Busoga District Farm Institute.
	S. J. Ibanda	Busoga.
	S. W. Igaga	Busoga.
	A. F. Wambuzi	Busoga.
	N. O. Z. Sakio	Bukedi.
	M. W. Prosser	Bukedi.
	J. Walimbwa	Bukedi.
	S. N. Mabosi	Bukedi.
	G. O. Namulya	Bukedi.
	M. Nasimuyu (Miss)	Bukedi District Farm Institute.
	R. M. Baker	Bukedi District Farm Institute.
	E. H. Chapman	Bugisu.
	E. B. Sarulo	Bugisu.
	N. V. Millet	Bugisu.
	A. G. Kibulo	Bugisu.

2. MECHANICAL AGRICULTURAL DEVELOPMENT SCHEMES—*continued*

<i>Title</i>	<i>Name</i>	<i>Station</i>
<i>Assistant Agricultural Officers— continued</i>	E. S. Mugambani	Bukedi.
	E. N. Wasubire	Bugisu.
	C. R. Hullock	Sebei.
	D. A. Omoding	Teso.
	D. A. Carmichael	Teso.
	T. Ward	Teso.
	A. S. N. Mukacha	Teso.
	A. Y. Ayazika	Teso.
	A. Akoru	Teso.
	P. K. Mutumba	Teso.
	E. O. Oriokot	Karamoja.
	L. Ekoel	Teso.
	F. Bateman	Karamoja District Farm Institute.
	A. Kyalimpa	Toro.
	P. McConachie	Toro.
	M. R. Sadler	Toro.
	H. McKilligan	Toro.
	A. Alibawani	Toro.
	M. Kangwagye (Miss)	Toro District Farm Institute.
	E. Assand	Toro.
	I. M. Bulikiro	Bunyoro.
	J. B. Katusebe	Bunyoro.
	S. K. Mboneraho	Bunyoro.
	M. Kagoro	Bunyoro.
	I. L. Fisher	Ankole.
	L. L. Kyeyune	Ankole.
	G. W. Katuro	Ankole.
	A. M. Kirya	Ankole.
	W. J. F. Hill	Ankole.
	E. R. Kanyari	Kigezi.
	M. R. Onenby	Kigezi.
	T. N. Butyanyandi	Kigezi.
	J. A. McMullin	Kigezi.
	G. Kinyonyi	Kigezi.
	C. J. Howse	Kigezi District Farm Institute.
	R. G. J. Revell	Acholi.
	P. J. Otto	Acholi.
	T. Lands	Acholi.
	Y. Nyago	Acholi.
	E. R. Kaabwa	Acholi.
	E. Kemba	Lango.
	A. Nyamwegyendaho	Lango.
	N. A. Ecodu	Lango (Ngetta).
	D. C. Collin	Lango District Farm Institute.

2. MECHANICAL AGRICULTURAL DEVELOPMENT SCHEMES—*continued*

<i>Title</i>	<i>Name</i>	<i>Station</i>
<i>Agricultural Mechanics</i>	R. G. Holden	Namalere.
	G. D. Ripamonti	Namalere.
	P. D. I. Roberts	Namalere.
	J. Musajjalumbwa	Buganda.
	R. K. Owen	Buganda.
	R. Ellam	Eastern Region.
	F. Jones	Eastern Region.
	S. Kiwanuka	Eastern Region.
	I. Srunishan	Western Region.
	B. Walsingham	Northern Region.
	H. Kizza	Northern Region.

3. EDUCATION

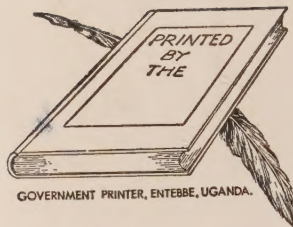
<i>Principals</i>	D. C. Todd	Bukalasa.
	J. R. Low	Arapai.
<i>Agricultural Officers</i>	A. R. Dunbar	Bukalasa.
	E. S. T. Marshall	Arapai.
	A. D. R. Ker	Arapai.
<i>Senior Assistant Agricultural Officer</i>	E. Kyagaba	Bukalasa.
<i>Biologist</i>	G. G. Turkler	Arapai.
<i>Assistant Agricultural Officers</i>	W. Todd	Bukalasa.
	Y. Isabirye	Bukalasa.
	J. D. Lewis	Bukalasa.
	N. G. Turk	Arapai.
	T. Woodman	Arapai.
<i>Bursar</i>	D. E. K. Muganga	Bukalasa.
	P. Y. A. Oryema (<i>Acting</i>)	Arapai.

4. RESEARCH DIVISION

<i>Chief Research Officer</i>	J. E. Hardy	Entebbe.
<i>Principal Research Officers</i>	D. Stephens	Kawanda.
	N. R. Brockington	Serere.
<i>Senior Research Officers</i>	B. Butters	Kawanda.
	W. R. Ingram	Kawanda.
	J. F. Harrop (<i>Acting</i>)	Kawanda.
<i>Botanists</i>	C. A. L. Leakey	Kawanda.
	D. J. Butt	Kawanda.
	S. K. Mukasa	Kawanda.
	A. J. Tribe	Serere.
<i>Agronomist</i>	G. E. D. Tiley	Kawanda.
<i>Entomologists</i>	J. C. Davies	Serere.
	M. R. Smith	Serere.
<i>Chemist</i>	M. A. A. D'Costa	Kawanda.
<i>Agricultural Officers</i>	A. G. Ousely Smith	Kawanda.
	R. G. Grimble	Kawanda.
	H. D. Mubiru	Kawanda.
	Y. K. Musisi	Kawanda.
	A. G. K. Will	Kawanda.
	T. H. Stobbs	Serere.

4. RESEARCH DIVISION—*continued*

<i>Title</i>	<i>Name</i>	<i>Station</i>
<i>Senior Assistant Agricultural Officer</i>	A. Kanya	Bukalasa Farm.
<i>Assistant Agricultural Officers</i> ..	D. M. Patel	Kawanda.
	J. R. Mayne	Kawanda.
	W. G. Foggon	Kawanda.
	J. B. Kavuma	Kawanda.
	A. M. Alarakhia	Kawanda.
	C. Harn	Kawanda.
	P. W. Newhouse	Serere.
	R. O. Wheeler	Serere.
	J. B. Whitting	Serere.
	C. K. Wangi	Serere.
	S. E. Mabey	Kituza.
	D. E. M. Clegg	Kituza.
	M. K. Katumba	Kituza.
<i>Spraying Machinery Technologist</i>	T. R. Jones	Kawanda.
<i>Librarian</i>	C. Horn	Kawanda.
<i>Laboratory Technicians</i> ..	E. Kibern	Kawanda.
	S. Kibirige	Kawanda.
	F. R. Rwashema	Kawanda.
	Z. M. Nyira	Serere.
<i>Higher Executive Officers</i> ..	P. K. Lukwago	Kawanda.
	H. M. Wanzaale (<i>Acting</i>)	Serere.
<i>Curator, Botanic Gardens</i> ..	Z. K. Kateregga	Entebbe.



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